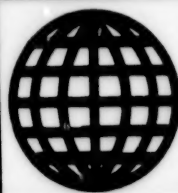


JPRS-TEN-94-023
28 September 1994



**FOREIGN
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JPRS Report

Environmental Issues

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Environmental Issues

JPRS-TEN-94-023

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REGIONAL AFFAIRS

Roundup of Environmental Reports

AB1209153494

[Editorial Report] The following is a roundup of recent environmental reports monitored from media in FBIS Abidjan Bureau and EAU coverage areas through 10 September.

GHANA

Accra Ghana Broadcasting Corporation Radio Network in English at 0600 GMT on 29 August reports that the survey conducted by the environmental group, Friends of the Earth Ghana, indicate that unless immediate action is taken to protect lagoons and their connected wetlands in the country, there will be serious irreversible degradation. The group has therefore called for due protection of these lagoons to save their economic importance to the communities in which they exist. The research was conducted to assess the socioeconomic and biophysical relationship that exists between the wetlands and communities surrounding them. It was also to appraise the best possible option for full utilization of wetland resources in the country. The survey found that with increasing economic activity and rapidly eroding traditional beliefs, there is a rising tendency toward degradation especially in the absence of any laid down and enforceable policies and laws on wetlands. The survey also found that some of the wetlands are unsuitable for primary contact. It further revealed "that malaria with a prevalent rate of between 30 to 60 percent is also found to be endemic to all wetland areas, with yellow fever localized in particular areas."

Accra Ghana Broadcasting Corporation Radio Network in English at 2000 GMT on 30 August reports that the rape of the country's forests continues with careless abandon. The export of timber in log form has hit alarming proportions as it has exceeded the annual allowable cut by more than 40 percent. At a news briefing in Accra on 30 August, the minister of lands and forestry, Dr. Kwabena Adjei, clarified the purpose of the 1994 Trees and Timber Amendment Bill and stressed the need for imposing levies on timber exports.

NIGERIA

Lagos NTA Television Network in English at 2000 GMT on 10 September reports the Bar Beach on Victoria Island has continued its fast disappearance following the relentless surge of the Atlantic Ocean. A correspondent reports that "a significant portion of the long stretch of what used to be Bar Beach has now caved in to the relentless pounding of the powerful Atlantic waves." "The affected portion now poses a real danger not only picnickers who throng the beach especially at weekends, but also to motorists and occupants of the residential and office blocks overlooking the beach." Motorists on the Ahmadu Bello Way cling only to one lane as the other

lane has been compromised by the ocean surge. "Much of the brick fence erected some years ago by the Lagos State Government to beautify the beach and demarcate it from the road, have collapsed under the pressure of the Atlantic waves." Sand bags deposited at the beach to hold off the waves are also being swept away by the Atlantic leaving the Ahmadu Bello Way and the huge investment in real estate nearby at the mercy of the relentless ocean surge.

Angola, Botswana, Namibia Sign Water Cooperation Agreement

MB1609181094 Johannesburg Channel Africa Radio in English 1600 GMT 16 Sep 94

[Text] The governments of Botswana, Namibia and Angola have agreed to cooperate on the conservation, development and use of water with sources common to all three countries. The mineral resources and water affairs ministry of Botswana said that an agreement to establish the Permanent Okavango River Basin Commission had been signed in Gaborone by officials from the countries involved.

The ministry said that the commission would advise governments on the long-term safe yield of water available from the Okavango River, which is drawn upon by all three countries. It would also work to control pollution and aquatic reeds in the river basin. The ministry said that Botswana and Namibia had signed a similar agreement on the use of the Okavango Basin in 1991. Angola had now been admitted to the agreement.

SOUTH AFRICA

Continued Illegal Dumping Creates Toxic Waste 'Time Bomb'

MB1909120394 Johannesburg THE CITIZEN in English 16 Sep 94 p 10

[Text] The continued illegal dumping of an estimated eight million tons of highly toxic waste a year in South Africa, and particularly in the PWV (Pretoria, Witwatersrand, Vereeniging) province, has created a lethal environment time bomb impossible to defuse, according to waste industry specialists.

"Nobody knows where the rest of the stuff is really going. I am afraid we're living in the middle of a real horror story and most people don't even realise it," chairman of the waste removal company, Enviroserv, Mr Heinz Heuser, said yesterday.

Despite problems, the official waste management watchdog, the Department of Water Affairs (DWA) is only now able to start taking more effective action against offenders.

The seriousness of the situation was confirmed this week by the DWA, which is appointing several high-level

working groups to improve waste management control and make recommendations on future strategies.

DWA's deputy director of Waste Management and Water Care, Mr Leon Bredenhann, said the urgency of the matter could not be stressed enough. "It is imperative that the entire community become involved, industry clean up its act and proper control be exercised."

He said it took about five years to do the necessary research but, depending on the findings of the various working groups, much stricter future legislation and regulations were likely to follow.

He was reacting to information that in the PWV province, where up to 70 percent of South Africa's annual 12.2 million tons of toxic waste was generated, between 15 and 35 percent of hazardous waste could not be accounted for and were illegally dumped on unsuitable sites.

"That's actually a very conservative percentage. It's bound to be much higher."

The PWV was estimated to generate in excess of eight million tons of hazardous waste a year, of which the Pretoria area, excluding Iscor, contributed about 2,000 tons.

An estimated 33 waste removal companies operated in the PWV, but at least six million tons of toxic waste from

Reef industries were estimated to have never reached the Class 1 hazardous waste disposal sites on the East Rand, and less than eight percent of the Pretoria/Brits area "goes south" to these sites.

Virtually all the Pretoria and surrounding industrial areas' hazardous and toxic waste seemed to be dumped illegally either in Class 2 municipal refuse sites, or in disused quarries in the veld.

Despite the enormous annual amount of toxic waste, South Africa still only had the three certified Class 1 hazardous waste disposal sites—off Mossesburg near Mossel Bay, at Koedoeskloof near Uitenhage, and Holfontein on the East Rand. A fourth site at Chloorkop with a Class 1 permit cannot be used until a commission finalises its investigations.

Mr Heuser said illegal dumping by irresponsible contractors were effectively preventing the development of more Class 1 sites.

"They are undercutting legitimate professional waste management prices, because they don't have higher overhead costs. At the same time companies are not heeding advice to budget for waste removal transport costs—which is a relatively small percentage of total turnover."

Vice Minister Meeting on Sea Pollution Opens in Seoul

*OW1209081894 Beijing XINHUA in English
0755 GMT 12 Sep 94*

[Text] Seoul, September 12 (XINHUA)—South Korea, China, Japan and Russia opened a three-day vice-ministers' meeting here today to discuss ways of preventing pollution of the East Sea (the Sea of Japan) and the Yellow Sea.

Sponsored by the United Nations Environment Program (UNEP), the meeting, officially named the Northwest Pacific Action Plan (NOWPAP), will formulate a four-nation action plan to protect the two seas from pollution.

The meeting will also adopt three separate resolutions for the implementation of the plan.

Specific issues will include marine life preservation, an end to the flow of land-derived pollution into the seas and prevention of ocean contamination.

The three implementation resolutions will call for giving priority to regional projects to evaluate the status of water quality, the convening of a NOWPAP meeting every other year and the settling of the financial cost-sharing issue.

Beijing To Improve Legislation To Protect Environment

*HK1109070794 Beijing ZHONGGUO XINWEN SHE
in English 0844 GMT 10 Sep 94*

[Text] Beijing, September 10 (CNS)—To deal more effectively with the worsening environmental pollution, China, besides speeding up its development in environmental protection industry and injecting more money to protect the environment, will improve its legislation on and implementation of environmental protection laws.

According to Mr. Jie Zhenhua, head of the State Environmental Protection Bureau, China is now speeding up its revision of laws concerning environmental protection on air, water, noise as well as the management of natural preserves. The revisions will be submitted to the Standing Committee of the National People's Congress for examination and approval in the coming two years.

Not only will the revisions further define the standards of environment, but also include Chinese policies on industries, said Mr. Jie. The revised laws on prevention of and control over air pollution, for example, will stipulate that coal production should include the process of washing and processing.

The revisions will also contain criminal provision. Thus persons who have seriously violated environmental protection laws will not only be held for economic and administrative responsibilities but also be prosecuted for criminal liabilities.

Laws on prevention of and control over solid waste material as well as harmful and toxic material will also be drafted, Mr. Jie said.

He added that the system of China's environmental protection laws is quite comprehensive, including specialized laws such as "Environmental Protection Law", "Ocean Environmental Protection Law" and "Law on Prevention of and Control Over Water Pollution", as well as laws closely related to environmental protection like "Forest Law", "Wildlife Protection Law", "Water Law", etc. There are also over 20 administrative laws on environmental protection, more than 310 standards about state environmental protection as well as various local laws and regulations.

Jiang Urges Environmental Efforts by Industrialized States

*OW0809172294 Beijing XINHUA in English
1525 GMT 8 Sep 94*

[Text] Kiev, September 8 (XINHUA)—Chinese President Jiang Zemin Wednesday [7 September—day as received] called on industrialized countries to do more to protect the world environment.

The industrialized countries have been major contributors to the deterioration of the environment and therefore should do more to protect it, Jiang said.

The Chinese president was speaking to local journalists in the capital of Ukraine, where he just concluded a three-day official visit, the second leg of his three-nation European tour.

"We cannot say that just because they (industrialized countries) have polluted the environment, we (developing countries) can, too," he said.

However, it is quite fair to ask the rich countries, which have been the principal environmental polluters, to help ease the environmental problems in the developing countries, through such ways as providing loans and credit in this regard, Jiang said.

Asked about China's environmental protection, Jiang said that as a technocrat he is fully aware of the importance of environmental protection and fully understands the concern shown by people in the world about environmental protection.

"I have always maintained that in industrial development, we should make great efforts to strengthen laws and regulations on environmental protection," he said.

He emphasized that all development projects in the future should be screened to see whether they meet the requirements of environmental protection.

"It would go nowhere to spend large amounts of money on construction projects while being tight-fisted on environmental protection," Jiang said.

Guangzhou Strengthens Environmental Protection

OW1409072694 Beijing XINHUA in English
0654 GMT 14 Sep 94

[Text] Beijing, September 14 (XINHUA)—Guangzhou, capital of south China's Guangdong Province, has worked out new measures to strengthen protection and management of the environment.

A recent meeting in the city called on governments at all levels to go all out to support environmental protection.

The meeting agreed to concentrate on environmental protection planning, Pearl River protection, construction of new sewage treatment plants, control of pollution caused by motor vehicles and development of the environmental protection industry.

The meeting recognized that big progress has been made by the city in pollution control under fast economic development in the recent ten years.

But, problems still exist, such as the waste pollution in the Guangzhou section of the Pearl River, increasing number of motor vehicles causing air and noise pollution, and inefficient treatment of industrial solid pollutants.

At the meeting, leaders from various governmental departments of the city held that firm measures must be taken to control pollution and strengthen environmental protection.

Concrete programs will be drafted on key projects and funding. The city plans to plant more trees along the Pearl River and strengthen efforts in cleaning river water.

Inspection centers will be set up in the city to check air pollution by motor vehicles. The city plans to build an environmental protection industry zone and industrial pollutants and sewage treatment centers.

Regulations on Nuclear Materials Transportation Announced

OW1409125494 Beijing XINHUA Domestic Service
in Chinese 1138 GMT 14 Sep 94

[Text] Beijing, 14 Sep (XINHUA)—State organs in charge of nuclear energy recently promulgated the "Regulations Governing the Protection of Nuclear Materials in Kind During International Transportation."

According to sources, China joined the international "Convention of Protecting Nuclear Materials in Kind" in 1989. For the sake of executing the convention and fulfilling the obligations of a signatory, competent Chinese Government authorities—the Ministry of Public Security and state organs in charge of nuclear energy—formulated the regulations on 12 July this year.

The regulations state in explicit terms that operating international transportation of nuclear materials must

have the approval of competent state authorities, a licensing system shall be instituted, and all units and individuals without the approval of competent state authorities may not possess, transfer, or transport nuclear materials; that the passage and transportation of nuclear materials may not be conducted in China without the approval of competent Chinese Government authorities; that those who accept, possess, transfer, replace, and dispose of nuclear materials without legal authorization shall have their legal liabilities investigated; and that stealing nuclear materials as well as obtaining nuclear materials through fraud and extortion constitute criminal conduct punishable by the law.

The regulations have detailed provisions governing the responsibilities, management, protection categories and measures, and legal responsibilities of organs in charge of transportation of nuclear materials. The regulations will become effective on 15 September 1994.

Qian Qichen Calls for Environment 'New Global Partnership'

OW2009130494 Beijing XINHUA in English
1237 GMT 20 Sep 94

[Text] Beijing, September 20 (XINHUA)—Chinese Foreign Minister Qian Qichen urged the international community to speed up its efforts to establish a new global partnership at a high-level international meeting on environment and development here today.

Addressing the opening session of the third meeting of China Council for International Cooperation on Environment and Development, Qian, also vice-premier, said that the United Nations environment and development conference of 1992 proposed that establishment of a "new global partnership" be the basis for international cooperation of environment and development.

"For the past two years since then, though the international community has spent many efforts in implementing the agreements reached at the UN meeting, the 'new global partnership' is far from being realized," he said.

"The urgent task for the international cooperation of environment and development right now is to spare no efforts to establish such partnership at earlier time" the Chinese foreign minister said.

"For the past two years, little progress has been made in some of the key areas such as financial resources and transfer of technology, which has damaged the credibility of UN and the international community to some extent," he said.

Qian said that he hoped that all countries, particularly the developed countries, would take immediate and effective measures and concrete steps to carry out the decisions made by the UN environment and development conference.

"Protecting environment and realizing a sustainable development is in the interest of mankind and therefore is the common task of the human beings," Qian said. "Nobody can stay out of it."

"The developed countries have a historic duty and the ability to do something about it," he noted.

"For many years, the developing countries have been making huge efforts in committing themselves to many international conventions and agreements of environmental protection," he said. "Now it's time the developed countries take their own action."

In his speech, Qian also called for a stop of using "environment protection" as an excuse to limit the economic and trade development of the developing countries.

Qian warned of an on-going trend of taking environment protection as an excuse to impose some unrealistic standards and requirements on the industries and products of the developing countries.

"Such trend could become a new trade barrier and harm the economic development of the majority of the developing countries," he said, "and eventually it weakens their ability to participate in the international cooperation of environment protection."

"The international community should join hands in the spirit of equal partnership to resist such harmful trend," he said.

The China Council for International Cooperation on Environment and Development was formed by about 20 Chinese senior government officials and another 20 foreign government and international organization officials in 1992.

Senior Chinese Government officials including State Councillor and Minister of Science and Technology Song Jian, chairman of the Environment and Resources Committee of the National People's Congress Qu Geping and Director of the State Environmental Protection Administration Xie Zhenhua also spoke at today's meeting.

Representatives from UNDP, World Bank, Ford Foundation and European Union also made speeches at the meeting.

Gansu Scores Achievements in Environmental Protection

OW1909155894 Beijing XINHUA in English
1516 GMT 19 Sep 94

[Text] Lanzhou, September 19 (XINHUA)—Air in the urban areas is becoming clearer, the desert is retreating and the barren Loess Plateau is being effectively protected by clusters of shelterbelts.

This is all part of the achievements scored by northwest China's Gansu Province in environmental protection over the past decade.

In the past Gansu suffered from severe pollution caused by such heavy industries as nonferrous metals, metallurgy, petrochemicals and power.

The inland province also incorporates a large area of desert and the dry Loess Plateau that suffered from severe erosion.

However, years of efforts have virtually changed this situation.

The Hexi Corridor, in the northwest of Gansu, where three million ha [hectares] of desert used to threaten farmland, has been developed into a green corridor.

A 1,200-km-long shelterbelt has been planted there, which helped restore some 26,000 ha of farmland and curbed the invasion of 187,000 ha of shifting sand. A total of 1,400 villages have been saved from the fate of being buried by the shifting sand.

In addition, the corridor has become the largest granary in the province, yielding more than 70 percent of its commodity grain and 40 percent of fruits each year.

Dingxi County, in the central part of the province, suffered from serious erosion that topped 18 million tons annually before 1983. Local residents have transformed 63,000 ha of barren land into terraced fields, and planted 373,000 ha of trees and 579,000 ha of grass.

Some 57 percent of the area suffering from erosion in the Longnan Prefecture has been harnessed, as a result of massive government funding during the past few years. Hundreds of mud-rock flows and landslides hit the prefecture before 1988.

This capital of Gansu spent 1.3 billion yuan developing its "blue sky" project. As a consequence, floating dust has been reduced by 40 percent in winter.

A total of 387 million yuan has been spent on infrastructure facilities and new technology to improve environmental conditions in the past decade. More than 3,300 pollution-control projects have been completed.

Chen Junsheng at Meeting on Preventing Desertification

OW1909011494 Beijing XINHUA Domestic Service
in Chinese 0252 GMT 16 Sep 94

[By correspondent Zhang Lianyou (1728 6647 0645) and reporter Zhao Lianqing (6392 6647 1987)]

[Text] Beijing, 16 Sep (XINHUA)—State Councillor Chen Junsheng recently stressed: The prevention and control of desertification has all along been an arduous, long-term task for China. In the future, all areas must strengthen leadership, increase input, and step up efforts to prevent desertification. While making such efforts, they must take comprehensive measures to address the problems concerning desert, rivers, farmland, forests, and roads; strive for comprehensive development; and,

thereby, produce grains, cotton, fruits, edible oil, meat, eggs, milk, and sugar from the desert.

A work conference of the National Coordination Group for the Prevention and Control of Desertification [NCGPCD] recently opened in Beijing. Chen Junsheng, Liu Jimin, deputy secretary general of the State Council General Office, and other leaders listened to a briefing by Xu Youfang, NCGPCD director and forestry minister, on China's prevention and control of desertification. Xu Youfang said: China has dealt with desert-related problems in a total desert area of 33.66 million mu since the implementation of a project to prevent and control desertification. Among them are 6 million mu of man-made forests, 4.05 million mu of forests through broadcast seeder, 18.6 million mu of forests and grassland through closure of desert to natural resources exploitation to facilitate afforestation and cultivation of grassland, 1.14 million mu of cultivated economic forests, and 1.56 million mu of cultivated farmland. Agriculture, water resources, and forestry departments have carried out more than 600 projects of diversified operations in the desert.

Chen Junsheng pointed out: Desertification is one of the major factors endangering agricultural and animal husbandry production and people's livelihood in the desert and hampering economic development in such areas. We must proceed from the overall situation of national economic development and social progress; combine the efforts to prevent and control desertification with those to improve the natural environment, develop the economy in the desert, and help the people living in desert areas shake off poverty and set out on the road to a fairly comfortable life; and make contributions to the fulfillment of the strategy for the development of central and western China.

Chen Junsheng stressed: Though the desert areas' ecological conditions are bleak, they are endowed with abundant natural resources. In the future, while making efforts to prevent and control desertification, all areas must take comprehensive measures to address the problems concerning desert, rivers, farmland, forests, and roads; strive for comprehensive development; and promote all-round development of the agriculture, forestry, animal husbandry, water resources, and industry sectors. Areas that have scored initial successes in addressing the above-mentioned problems must open up new farmland, tree farms, ranches, orchards, and fish ponds to build oases with multiple functions designed to improve the ecology and economy and to produce grains, cotton, fruits, edible oil, meat, eggs, milk, and sugar from the desert. Among China's 2.3 billion mu's area of desert, 1 billion mu can be exploited. Successful exploitation of this 1 billion mu of desert will play an important, strategic role in easing the contradiction between a huge population and a scarcity of land confronting China.

The NCGPCD recently established a team of senior experts and advisers to conduct further scientific

research in the prevention and control of desertification, in addressing the above-mentioned problems, and in exploiting deserts. Sixteen senior experts from the Chinese Academy of Sciences and other institutions were employed as team advisers.

Wang Bingqian Inspects Ningxia's Environmental Protection

OW1509091294 Beijing XINHUA Domestic Service in Chinese 1339 GMT 2 Sep 94

[By reporter Wu Guoqing (0702 0948 3237)]

[Text] Yinchuan, 2 Sep (XINHUA)—While inspecting Ningxia Hui Autonomous Region from 30 August to 2 September, Wang Bingqian, vice chairman of the National People's Congress Standing Committee, pointed out: The more we develop the economy, the more we must increase our sense of environmental protection.

In Ningxia, Wang Bingqian inspected Taixi Coal Washing Plant; Daba Power Plant; Qingtongxia Aluminium Plant; Shabotou Experiment Station under the Chinese Academy of Sciences' Lanzhou Desert Research Institute; Zhongwei dune-fixing forest; Ningxia Chemical Plant, Xibei Bearing Plant, Xiaokang new village in Dawukou Town; the Yongning County mosque; and Hui nationality peasant households. He pointed out: Enterprises must develop a stronger sense of environmental protection, and environmental protection departments must actively work with enterprises to mutually promote the task. In particular, power plants must not only equip themselves with special storehouses for coal ash and slag but also attach particular importance to comprehensive development of these wastes into useful products. This will not only prevent environmental pollution but also bring about economic efficiency.

Wang Bingqian pointed out: While developing the economy, we must attach importance to environmental and resources protection. Environmental protection is a hot issue internationally and one of our country's basic national policies. The task is of utmost importance to economic development and the people's life, which should not be overlooked. Governments at various levels must strengthen education in environmental protection, enhance the sense of environmental protection in the broad masses, improve the work of environmental protection institutions, and exercise control over environmental protection tasks in accordance with the laws. It is not only necessary to take remedial action on existing but also on new pollution causes. We must take early measures to tackle pollution causes and not wait until the problems have become serious. In short, we must strive to achieve coordination in economic construction, social development, and environmental protection.

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Chen Junsheng Addresses Desert-Control Conference

OW1609182794 Beijing XINHUA in English
1406 GMT 16 Sep 94

[Text] Beijing, September 16 (XINHUA)—A high-ranking Chinese official has stressed that developing agriculture in desert areas must go hand in hand with the checking of sand encroachment.

State Councillor Chen Junsheng made the remark at a working conference here of the National Desert-Control Coordination Group.

Chen said that desert encroachment, threatening agricultural and animal husbandry production and even people's lives, takes much blame for hindering the economic development in desert areas.

China now has 153 million ha [hectares] of sandy and arid land, mostly in the northwest, out of which 67 million ha can be utilized and developed.

The official encouraged the areas where deserts are under control to develop farmland, pasture, tree farms, orchid growing and fishponds.

Oases should be built into production bases for grains, cotton, fruits, edible oil, meat, eggs, milk and sugar, he added.

He concluded that boosting mixed agricultural production in desert zones can not only help local people shake off poverty and become better-off, but also quicken the economic development in the relatively backward northwest region.

The country can make use of more than two million ha of desert, by planting forests and grass, and exploiting farm and water-conservancy projects.

The meeting decided to set up a panel, made up of 16 senior experts from the Chinese academy of sciences and other research institutions, to pursue further studies in this field.

Beijing Hosts Conference on Endemic Fluorosis

HK2209101894 Beijing CHINA DAILY in English
22 Sep 94 p 5

[By Shao Ning: "Medical Experts Join To Fight Crippling Disease"]

[Text] Exchange of research and treatment strategies are helping to tackle China's severe fluoride poisoning problem.

About 150 Chinese and more than 80 foreign delegates from 15 countries gathered in Beijing recently to discuss endemic fluoride poisoning (endemic fluorosis) at the 20th Conference of the International Society for Fluoride Research.

Endemic fluoride poisoning is a chronic geochemical disease caused by high fluoride intake over a long period of time.

The early symptoms are dental fluorosis, tooth staining and exfoliation. The disease can affect patients' bones, joints, muscles and even cause complete paralysis.

The endemic fluorosis areas are found in nearly 60 countries across the globe, according to conference sources.

The conference was sponsored by the Consultant Committee of Endemic Fluorosis of the Chinese Ministry of Public Health, and Institute of Environmental Health and Engineering under Chinese Academy of Preventive Medicine.

In China, endemic fluorosis is one of the four major endemic diseases related to environmental factors. It is classed as a severe endemic disease with a broad distribution. Endemic fluorosis has been found in 1,230 counties of 29 provinces, autonomous regions and municipalities in different degrees.

According to the Chinese Health Statistical Digest 1992, the number of dental and skeletal fluorosis patients reached 42.88 million and 2.37 million respectively.

More than 100 million people are threatened by this disease. The sickness rate of dental fluorosis in children is high, and skeletal fluorosis poses a serious threat to women of child-bearing age. Many afflicted patients have lost their ability to work, either partially or entirely.

During the conference, participants focused on endemic fluorosis cure and prevention research. Many Chinese delegates introduced their efforts on treatment and prevention.

In China, endemic fluorosis is divided into two main types.

One is caused by living in an environment polluted by fluoride from coal smoke.

Such areas are mainly distributed in 197 counties of 12 provinces—such as Guizhou, Sichuan, Hunan, Yunnan, Hubei and Shanxi, where local residents use coal for cooking, heating and drying crops. Coal used in these areas usually contain high levels of fluorides.

People living there breathe in a great amount of fluoride from the air and eat food contaminated by the coal smoke. The number of dental and skeletal fluorosis patients affected in this manner reached 16.50 million and 1.08 million respectively, according to the 1992 Chinese Health Statistical Digest.

Fluorosis caused by drinking highly fluoridated water is found in 1,054 counties of 29 provinces, autonomous regions and municipalities.

The number of dental and skeletal fluorosis patients afflicted through drinking water amount to 26.38 million

and 1.28 million respectively. Altogether there are 72.2 million people threatened by this disease.

The endemic areas are divided into three sub-types on the basis of fluoride concentration in water and incidence of the disease. There are 62,072 villages in the light endemic areas and 45,171 villages in the moderate and severe regions. The severe endemic areas are mainly located in the northern part of China such as Inner Mongolia Autonomous Region, and Shandong, Shanxi, Hebei, Henan, Jilin, Heilongjiang Provinces and Tianjin Municipality.

A special fluorosis due to tea-drinking has been documented in 15 counties of Sichuan Province.

The government has been making a nationwide effort to study and prevent endemic fluorosis.

Fluorosis prevention began as early as in 1960.

After three decades of efforts, all endemic fluorosis areas have been identified. Treatment methods suited to different endemic areas' conditions are proving to be effective.

Alternative water sources with a normal fluoride level, such as deep wells, rivers, streams and springs, have been developed in the regions where traditional drinking water supplies have a high fluoride content. Physical and chemical defluoridation methods are also used to decrease the concentration of fluoride.

By the end of 1992, 32,856 villages, which accounted for 30.6 per cent of the total number of the counties in China, had altered their water sources.

So long as water-improving facilities are used, endemic fluorosis can be controlled, said Professor Cao Shouren, Chairman of the Conference.

In Shandong Province, experts selectively examined children 8-12 years old in 48 villages that have improved their water over five- to-eight years and found the fluorosis incidence rate was below 30 per cent.

In Dali county of Shanxi Province, the fluorosis incidence rate dropped to 22.8 per cent in 1993, down from 81.2 per cent in 1985.

Scientists found that many skeletal fluorosis patients can partially or even fully recover from the disease after years of drinking normal fluoride-level water.

In the coal-burning fluorosis areas, nearly one million new-design cooking stoves have been installed to minimize indoor air-and-food pollution from coal smoke.

Four million people have benefited since 1986. That's 13.25 percent of the total living in endemic areas.

Chinese scientists also began to research endemic fluorosis in the early 1970s. Research covered the field of epidemiology, geology, diagnosis, treatment and preventive measures.

Basic research was strengthened in the late 1980s. Scientists have dug deep into the relationship between fluoride and cancer, and between nutrition and dental fluorosis.

Despite the considerable headway on fluorosis prevention, China still faces a lot of problems.

There are millions of people living in the widely dispersed fluorosis areas still threatened by the disease.

Scientists said that it will take years to eradicate endemic fluorosis in the nation.

The conference garnered the government's great attention. "China has the world's severest problems of endemic fluorosis," China State Councillor Chen Junsheng said. "Although we have made great progress on fluorosis prevention, it will take a long time to get rid of fluorosis."

Chen also said that future, co-operative, global scientific interchange on fluoride research and prevention will be extremely meaningful and most welcome in China.

Anhui Steps Up Efforts To Free Huaihe River From Pollution

*OW2209063294 Beijing XINHUA in English
0624 GMT 22 Sep 94*

[Text] Hefei, September 22 (XINHUA)—Anhui Province in east China is determined to make a breakthrough by 1997 in purging pollutions on the Huaihe River, the major waterway in the province.

Officials from the provincial government said recently that the province has ordered 63 enterprises, the main polluting sources, to shut down within the year.

The government has also published the names of 27 polluting enterprises, warning that they must reduce their pollution to the acceptable levels by 1997, or they will be closed down.

From now on, the government will not approve the building of any small factories in papermaking, chemicals, soy sauce brewery and small tanneries, the officials said.

Over the past ten years, seven cities along the river have spent 294 million yuan on 1,059 environment projects, resulting in the plunge of industrial waste water drainage by 91 million tons, and of waste solids by 58 million tons, according to official statistics.

Despite the efforts, some 207 major pollution accidents have occurred on the river and its tributaries over the past decade, causing economic losses amounting to billions of yuan, and serious threat to the health of the people in the valley, the officials said.

The new measures provide that environmental protection will be a major aspect in evaluating the work of

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government officials, that those found neglecting their duties might be charged with criminal offences, the officials said.

Li Ruihuan Discusses Environmental Protection Efforts

*OW2209163494 Beijing XINHUA in English
1522 GMT 22 Sep 94*

[Text] Beijing, September 22 (XINHUA)—A top Chinese leader said here today that China, along with other countries in the world, would continue its contributions to global environmental protection.

Li Ruihuan, chairman of the Chinese People's Political Consultative Conference (CPPCC) National Committee, said this while meeting with Chinese and foreign delegates attending the third session of the China Council for International Cooperation on Environment and Development (CCICED).

He said that though China has made great achievements and accumulated rich experience in environmental protection in the past, there are still many problems and difficulties in this regard, due to its rapid economic development.

So, Li said, the Chinese Government will spread knowledge of the importance of environmental protection, and take economic, judicial and administrative measures to make everybody pay greater attention to environmental protection.

China will also solve the difficulties in this respect by introducing advanced technology from foreign countries and learning from their successful experience, Li added.

He said that since environmental protection is an international problem, it should be solved through international cooperation. For the common interests of the whole mankind, the developed countries should actively spread their advanced technology and experience in environmental protection, and the developing countries should strengthen their work in this regard to avoid the mistake of causing pollution first and controlling it later, Li said.

He stressed that the Chinese government attaches great importance to other countries' advanced experience in environmental protection, and is willing to carry out international cooperation in this field.

China especially pays close attention to the consultative work of the CCICED, Li added.

Set up in 1992, the CCICED is an advisory body on China's environment protection consisting of Chinese and foreign experts.

During the meeting Huguette Labelle, vice-chairman of the CCICED and president of the Canadian International Development Agency, spoke highly of China's

efforts for environmental protection and the great role it has played in global environmental protection.

She said that the efforts China have made will bring benefits to the development of both China and the world, since environment and development are complementary.

She noted that during the session many proposals had been made, the most important of which was to enhance the people's sense of environmental protection.

Fujian Leader Meets Environment Inspection Group

*HK2209124494 Fuzhou Fujian People's Radio Network
in Mandarin 2300 GMT 5 Sep 94*

[Text] Jia Qinglin, secretary of the provincial party committee and chairman of the provincial people's congress standing committee, and Fujian provincial leaders Huang Wenlin, Su Changpei, Liu Yongye, Song Jun, Shi Xingmou met at Fuzhou's Wenquan Hotel on the evening of 5 September with the entire membership of the Fujian group of the national environmental protection law enforcement inspection team, headed by Yang Zhenhuai, deputy director of the Environment and Resources Committee of the National People's Congress.

Jia Qinglin expressed a welcome for the arrival of the inspection group, saying: Environmental protection concerns the well-being of our future generations. It is hoped that the inspection group will inspect and guide Fujian's work in the field of environmental protection and environmental law enforcement.

International Meeting Urges Beijing To Control Environment

*OW2309043694 Beijing XINHUA in English
0305 GMT 23 Sep 94*

[Text] Beijing, September 23 (XINHUA)—Foreign and Chinese scientists at an international meeting called on the Chinese Government to take tougher measures against environmental pollution and protect wildlife.

The recommendations, which were passed at the third meeting of the China Council for International Cooperation on the Environment and Development, asked the Chinese Government to pay particular attention to the problems of transportation and water.

A summary of the recommendations is as follows:

As energy is critical to China's development, the country should improve energy saving, conservation and distribution, diversify energy sources and develop alternative technologies, especially with cleaner coal and greater end-use efficiency;

The continued destruction of biodiversity in China is doing major damage to the economy and is likely to get

worse. China should fully endorse legislation to protect existing protected areas and to extend them where possible;

China should co-operate more closely with neighboring countries to prevent trade in endangered wildlife species;

A sound data base on environmental quality with projections for the future should be set up;

More and better use should be made of such policy instruments as licenses, levies, fees, incentives and disincentives;

A better accounting system for resources is needed;

Prices for such vital natural resources as water, timber and coal should be gradually reformed and inappropriate subsidies should be removed; and

The role of the environment in international trade should be examined.

Speaking to reporters at the conclusion of the meeting on Thursday, Qu Geping, chairman of the Environment and Resources Committee of the National People's Congress, said that the meeting was a successful attempt to establish a "new global partnership."

According to Qu, the council, composed of about 70 senior foreign and Chinese officials and scientists, will meet again next year.

INDONESIA

Government Not To Extend Concession to Timber Company

BK0809161494 Jakarta Radio Republik Indonesia
Network in Indonesian 1500 GMT 8 Sep 94

[Text] Parliament's Commission IV has fully supported the government's decision not to extend Barito Pacific Timber Co. Ltd.'s forest concession because the company refused to hand over 49 percent of its equity to the government. In addition, the company cannot give a satisfactory and transparent account of its forest management program. (Imam Kurmen), a member of Parliament's Commission IV, disclosed this in Jakarta today.

Earlier, Forestry Minister Jamaludin Suryohadikusumo said the government decided not to grant a concession extension to the company owned by [ethnic Chinese] Prayogo Pangestu because of its failure to preserve the environment in many areas under the company's concession.

House of Representatives Expresses Concern Over Pollution

BK1709124794 Jakarta THE JAKARTA POST
in English 8 Sep 94 p 2

[Text] Jakarta (JP)—The House of Representatives (DPR) expressed concern yesterday over pollution levels in Java and Sumatera, and urged the government to tighten control over waste dumping.

Commission X [Roman numeral] in charge of ecological affairs warned that unchecked disposal of toxic waste has not only contaminated the environment, but also poses a health risk to human beings.

"Highly toxic waste was found in some residential areas in East Kalimantan, Central Java and West Java," Commission spokesman Jusman Tahar said when reporting on the findings of recent visits to the provinces.

In Riau poisonous waste comes from ships which dispose of oil and trash into the sea, contaminating the shores of the fast developing Batam, Bintan and Mapur islands, he said.

The commission urged the local government to intensify marine patrols in Mapur which has apparently been turned into a dump for industrial waste from Singapore, he added.

It also found pollution rife in the Asahan River, North Sumatera, although the major source has long been identified: pulp and paper manufacturer PT [Limited Company] Inti Indorayon Utama.

"The supremacy of law should be strictly upheld to stop the liquid industrial waste (from the paper plant)," Jusman said.

The multi-billion dollar pulp and paper plant has been constantly under attack from the DPR and local residents who charge it of rampant logging and polluting the environment.

The commission urged the government to issue a "strong warning" to two East Java paper factories, PT Pakerin and PT Ero KABA, for dumping their waste into the Porong River without proper treatment.

"The river water is blackish in color and it stinks," Jusman said.

Industrial pollution was also reported to be rampant in the Central Java town of Klaten where thousands of residents near the Gondang sugar factory have been breathing "black powder" emitted by the plant for many years.

Jusman said the powder resulting from malfunctioning filters has been falling as far away as two kilometers around the factory, blackening tiles and probably contributing to the poor health of residents.

In South Sulawesi, household and industrial waste has ruined the Losari Beach's chance of becoming province's major tourist destination.

Slack supervision of waste dumping has led to the beach becoming badly contaminated with urban waste, and the government should cope with the problem before it goes head with its plan to develop it, Juaman said.

The commission recommended that the local government build public dumps provided with waste treatment facilities to minimize the danger posed by the toxic waste.

JAPAN

Cabinet Admits Tokyo Won't Attain CO2 Emission Curb Goal

OW1309075794 Tokyo KYODO in English 0652 GMT
13 Sep 94

[Text] Tokyo, September 13 KYODO—The cabinet Tuesday [13 September] approved a report to the United Nations that says Japan will not be able to achieve the international goal of pegging the level of Japan's projected emissions of carbon dioxide in the year 2000 at the 1990 level.

The goal was earlier set under a 1992 international convention to counteract the "global warming" phenomenon, by which the average temperature of earth is expected to rise due to the accumulation of artificial gases that trap heat energy from the sun's rays within the planet's atmosphere.

Japan ratified the convention at the 1992 earth summit in Brazil, along with other nations. The convention obligates signatory states to submit reports to enable the

Geneva-based UN Secretariat in charge of the treaty to assess the 2000 emission level projections of each signatory state.

Japan is projected to emit a total of 330 million metric tons of carbon dioxide into the atmosphere in 2000, for an increase of 3 percent over the corresponding emission level of 1990, according to the government report.

The 3 percent increase cannot be avoided even if the government implements a series of planned measures to hold down emissions of the gas, the report said.

Carbon dioxide is known for its strong characteristic of trapping heat emanating from earth's surface and preventing it from dissipating into outer space.

The goal of holding down carbon dioxide emissions to the 1990 level by 2000 is also stipulated in the government's own domestic program for protecting the global environment.

Japan's aggregate emission level in 2000 would show a net increase of 10 million tons from the 1990 level to 330 million tons even if the government enforced a string of planned measures, such as the development of solar energy-based equipment and the recycling of natural resources, the report said.

Looking ahead to the target year of 2000, an environment agency official said, "at this stage, nobody can say whether Japan will have violated the international convention."

Environment Agency To Issue Guidelines on Bacteria Use

OW1909042994 Tokyo KYODO in English 0350 GMT 19 Sep 94

[Text] Tokyo, September 19 KYODO—The Environment Agency will formulate guidelines within the next five years on the safe and effective use of bacteria to help restore damaged environments, agency officials said Monday [19 September].

An agency panel of experts, headed by National Institute for Environmental Studies Chief Tsugumi Suzuki, will start on Sept. 29 to study technology called bioremediation, under which special bacteria are used to neutralize polychlorinated biphenyl (PCB), dioxine and other substances contaminating water and soil, they said.

The United States has been putting the technology to practical use since the late 1980s and Japan has almost perfected a method by which bacteria can be used to clean up soil polluted by trichloroethylene, they said.

The new panel will review domestic and overseas research on the bacteria, study the nature of such organisms and draw up a guideline on their use to avoid any harmful effects on the environment.

International Help Sought To Protect Marine Environment

OW1709014894 Tokyo NIHON KEIZAI SHIMBUN in Japanese 12 Sep 94 Morning Edition p 17

[Text] The Environment Agency [EA] has set out to form an organization for international cooperation with three countries, South Korea, China, and Russia, to protect the marine environment of Northeast Asia, which includes the Sea of Japan and the Yellow Sea. The objective is for the four countries to jointly create a cooperative body to carry out such tasks as monitoring ocean water quality and marine life, as well as devising environmental protection measures. As the first step, beginning on 28 September, the agency will cosponsor with Hyogo Prefecture an international forum on protecting the oceans to exchange opinions among the four countries and explore the possibility of a joint monitoring network.

The environmental destruction of Northeast Asia's maritime region, an important natural environment to each country, including Japan, by such acts as Russia's dumping radioactive waste in the Sea of Japan and the degradation of water quality in China's coastal areas due to economic development is of concern. Since protection of the maritime areas through the efforts of just one country is impossible, the EA has called on the other countries for international cooperation.

Researchers and government officials from the four countries, as well as representatives from the UN Environment Program (UNEP) and the UN Economic and Social Commission on Asia and the Pacific (ESCAP), are among those who will attend the "Workshop on Monitoring the Maritime Environment of the Sea of Japan" to be held in Hyogo Prefecture (Toyooka city, Shirosaki Town) and cosponsored by the prefecture. Local participants will include officials from 15 prefectures adjacent to the Sea of Japan, such as Hokkaido, Niigata, and Nagasaki, as well as representatives from the two cities of Niigata and Nagasaki.

Each nation will report the status of ongoing monitoring, as well as the results of joint, for example, Japan-Korea, Korea-China, monitoring investigations being carried out in the Sea of Japan and elsewhere, and discuss the possibility of joint multinational monitoring.

The EA aims to create a multinational monitoring network through its policy of continuing to hold international meetings.

Source Says Request for CFC Exemptions Rejected by UNEP

OW2109132594 Tokyo KYODO in English 1311 GMT 21 Sep 94

[Text] Tokyo, September 21 KYODO—The UN Environment Program (UNEP) has refused a Japanese Government request for exemptions from an international

agreement halting production of ozone-depleting chlorofluorocarbons (CFCs), Japanese Government sources said Wednesday [21 September].

CFCs are reputed to be responsible for depletion of the atmospheric ozone layer which protects the earth from the sun's harmful ultraviolet rays.

The government applied for exemptions from the agreement, known as the Montreal Protocol, to allow continued use of CFCs in showcases of the kind used to display frozen goods in shops.

Industrialized countries have agreed to the complete cessation of CFC production by 1996 and developing countries have set the date at 2006.

But the government applied for the exemptions under an "essential use" clause in the protocol which permits the use of CFCs in limited cases such as for research and health care where no other substitutes are available.

A meeting in Nairobi from 3 October of countries which are signatories to the protocol will determine what uses to define as "essential."

A government source said that in July, a UNEP assessment panel studied requests for exemptions from each signatory country and drew up a report for presentation to the October meeting.

The source said the report says Japan's request for exemption cannot be described as "essential use."

But a Ministry of International Trade and Industry official said the government's submission was not a formal request. The official said the government had merely informed the secretariat administering the protocol that Japan expected a shortfall in its supplies of CFCs.

"There is a possibility we will make a formal request," the official said.

The international conservation organization Greenpeace released a statement Wednesday saying the use of CFCs cannot be described as "essential" because substitutes are available.

Tokyo To Assist Middle East in Environment, Tourism

OW2309065794 Tokyo YOMIURI SHIMBUN in Japanese 23 Sep 94 Morning Edition p 2

[Text] On 21 September, the government decided to give full-scale assistance to environmental and tourism development programs in the Middle East, where the peace process is underway. It also plans to promote exchanges of top leaders—it will invite Israeli Prime Minister Yitzhaq Rabin to visit Japan in December and Egyptian President Muhammed Husni Mubarak to visit in March 1995.

In its aid program, Japan will emphasize environmental assistance through multilateral talks with countries concerned. A council consisting of about 30 countries concerned was established in 1992 to draw up blueprints for developing the region in the post-peace accord era. Japan, which chairs the environment committee of the council, will work to compile "guidelines for environmental conservation."

The guidelines will form the basis of nature preservation policies and development plans in the region. In the guidelines, the government plans to call for international cooperation in protecting the environment. It will also set measures to protect the marine environment from hazards such as oil spills and to prevent desertification. The guidelines are expected to be adopted at a meeting scheduled to be held in Bahrain in October.

As regards tourism assistance, the government will invite trainees from Middle East countries to Japan and hold seminars for them at the beginning of next year. The seminars are aimed at fostering local industries in the region.

Also, at multilateral council's economic development committee meetings, Japan will propose: 1) The drawing up of measures to protect historic relics and the environment as a means of promoting tourism; 2) Improving local infrastructure by building communications and transportation networks; and 3) simplifying procedures for border-crossings for foreigners.

SOUTH KOREA

Four Nation Antipollution Meeting Opens in Seoul

SK1209042594 Seoul YONHAP in English 0230 GMT 12 Sep 94

[Text] Seoul, September 12 (YONHAP)—South Korea, Japan, China and Russia opened a three-day vice ministers' meeting here Monday to discuss ways of preventing pollution of the East and Yellow Seas.

The UN Environment Program (UNEP)-sponsored meeting, officially named the Northwest Pacific Action Plan (NOWPAP), will produce a four-nation action plan to protect the two seas from pollution, but a hot debate is expected among the four nations over the question of how to describe the East Sea.

The South Korean Government will seek to replace "the Sea of Japan" in the UNEP-drafted action plan with "the East Sea." If it fails, it will refuse to subscribe to the plan.

The government will offer to describe the controversial sea using two names, the East Sea and the Sea of Japan, or by calling it "the blue sea," officials say.

If the meeting proceeds smoothly, the four nations will adopt an action plan on preventing pollution of the two

seas, a ban on inflows of inland pollutants and the preservation of maritime resources and ecosystems in the two bodies of water.

In order to execute this plan, the meeting will also pass a resolution calling for the selection of priority projects, such as environmental surveys of the two seas and preparation of a list of pollutants in them, the holding of a government-level meeting every other year among the four nations and fund-raising for necessary anti-pollution programs.

North Korea was invited to attend the meeting but failed to show up.

Assistant Foreign Minister Son Chun-yong heads the South Korean delegation comprising bureau director-level officials from the Economic Planning Board, the Foreign and Environment Ministries and the Korea Maritime and Port Administration.

Environmental Conference Drops 'Sea of Japan' in Documents

SK1309065094 Seoul YONHAP in English 0642 GMT 13 Sep 94

[Text] Seoul, September 13 (YONHAP)—Participants in a regional environment conference here paid heed to South Korea's opposition to the term "Sea of Japan" for the body of water lying between Seoul and Tokyo and agreed to a neutral label using latitude and longitude, the Foreign Ministry said Tuesday [13 September].

South Korea, Japan, China and Russia, here for the first inter-governmental conference of the Northwest Pacific Action Plan (NOWPAP), agreed to the label and its use in the action plan as well as three resolutions to be adopted at the meeting's close, the ministry said.

Working-level NOWPAP talks had generally conceded to calling the area the Sea of Japan, but Seoul said it would oppose any document that employed this label.

The resolutions establish three major NOWPAP projects for 1994-96, select Japan to host the second NOWPAP conference in 1996 and decide to operate a trust fund as soon as it exceeds 50,000 U.S. dollars.

Regional Marine Environment Conference Ends

SK1409132094 Seoul YONHAP in English 0808 GMT 14 Sep 94

[Text] Seoul, September 14 (YONHAP)—The Northwest Pacific Action Plan (NOWPAP) conference, the first regional inter-governmental gathering focusing on the marine environment, closed here Wednesday after setting five priority projects running to 1996.

South Korea, China, Japan and Russia attended the conference that opened Monday, with North Korea absent despite having been invited.

The four participants adopted an overall action plan and three resolutions outlining five objectives and five projects while pledging to meet in Japan a second time in 1996.

The four countries will take turns hosting the conference every year after 1996.

The objectives include assessment of environmental conditions, formation of a comprehensive database, collective management of resources, environmental protection planning and establishment of emergency measures.

Immediate projects include a survey of national legislation and strategies and creation of a regional activity center.

At some point the four will have to determine burden-sharing for NOWPAP's trust fund, with Japan likely to be the major contributor, officials here said.

The trust fund will become available after at least 50,000 U.S. dollars has been collected.

The conference skirted the issue of naming the body of water lying between South Korea and Japan, labeled the "East Sea" by Seoul and "Sea of Japan" by Tokyo.

The area was denoted by latitude and longitude instead to signify the geographic scope of NOWPAP.

TAIWAN

Aquarium Dealers Boycott United States Over Rhino, Tiger Sanctions

OW1509170094 Taipei CNA in English 1406 GMT 15 Sep 94

[By Debbie Kuo]

[Text] Taipei, September 15 (CNA)—Taiwan aquarium operators on Thursday [15 September] announced they will partially boycott ornamental and tropical fish imports from the United States as a protest against the US decision earlier this year to sanction Taiwan for its failure to stem the illicit trade in rhino horn and tiger bone.

Species affected by the boycott will be the popular cichlids and tetra, according to a spokesman for the ROC Aquarium Association.

The boycott, expected to be implemented soon, will cost US ornamental and tropical fish exporters about US\$500,000 of the US\$8 million in business they do annually with Taiwan—the same amount Taiwan had exported in tropical and ornamental fish annually to the United States before the US announced the sanction, the spokesman said.

The Clinton administration in May began blocking imports of crocodile skins, orchids, coral and ornamental and tropical fish species from Taiwan. The

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sanction is expected to cost Taiwan about US\$20 million in exports to the United States each year.

The Aquarium Association denounced the US penalty as unfair and prejudiced. Association officials said Mainland China and Hong Kong, as the two major consumers of rhino horn and tiger bone, should have been hit with trade sanctions as well.

They also said the penalty was virtually a denial of the progress Taiwan has made in environmental-conservation efforts over the past few years.

Taiwan aquarium operators will turn to South America and Southeast Asia for similar imports after the boycott takes effect, they said.

THAILAND

Governor on Extinction of Fish in Rivers

94WN0379A Bangkok DAILY NEWS in Thai 20 Jul 94 p 30

[Unattributed report: "Chao Phraya, Noi Rivers Almost Empty of Fish"]

[Excerpt] Mr. Nithisak Ratchaphit, the Governor of Angthong Province, announced to the media that the problem of the deterioration of the environment, such as from putrid water and polluted air and the lack of rainfall in the proper season, was becoming more serious now. [passage omitted]

This was the reason for the pollution of the environment which now included air and water pollution. Most important, the Department of Fisheries reported that in their survey of various fresh water fish in the Chao Phraya River and the Noi River they found only 31 species remaining even though in 1967 121 species still remained. This was considered to be very significant. If this was not corrected through cooperation between the state, private organizations and people in general, the various problems involved would become more and more severe and might become a danger to human and animal life. In particular the problems at hand would inevitably affect the health and way of life of the people.

Mr. Nithisak said in addition that protecting and reviving the environment would involve preventing various pollutants from large and medium industry such as dust, odors and noise etc. by using ecological methods. So he called on those involved with factories of all types in all locations to cooperate to increase the number of plants by planting perennials and flowers in the area of their factories or in other places over which they had rights and transforming those places as much as possible. What was important was to help the environment and the appearance of the province in the future.

Economic Factors in Nam Phong River Pollution

94WN0379B Bangkok ATHIT in Thai 29 Jul 94-4 Aug 94 pp 38-40

[Report by Banphot Sichannit: "The Phong River Is Putrid Again From Beginning To End With Its Death"]

[Excerpt] The "Nam Phong River" has its source at "Phu Kradung" Mountain in Loei Province. In the past the few people who went to Phu Kradung Mountain or used the waters of the Nam Phong River to make a living knew the qualities of the surroundings which helped people and society live there until now.

The area of the Phu Kradung National Forest covers 217,576.25 rai [a rai equals about 0.4 acres] and it rises from sea level to about 1,200 meters. [passage omitted]

The Natural Riches Are Beginning To Be Lost!

The headwaters of the Nam Phong River are now becoming shallow because of the corn farming near the headwaters in the area of Nam Nao District, Phetchabun Province and on the right bank of the Nam Phong River. This has caused the land to erode during the rainy season and silt to wash into the river and make it very shallow.

The national forest officials said of this problem that: "There are at least 5,000 villagers in 800 families living on the banks of the Nam Phong River at its headwaters. They make up 12 villages in the area around the national forest which include Ban Phong Nip Village, Ban Wang Kwang Village, Ban Fong Tai Village and Ban Fong Ngai Village on the right bank of the Nam Phong River and Ban Na Noi Village, Ban Than Tawan Village, Ban Nako Village, Ban Noi Ileng Village and Ban Dua Village on the left bank."

I interviewed the headman of Ban Phong Nip Village, which is a village located at the headwaters of the river, to learn of any environmental changes around the headwaters during the past 20 years. The words tumbled out as he related that: "in the past the Nam Phong River had many fish. There were snakeheads, eels, chat, snapping turtles, turtles, crocodiles and otters. But now the crocodiles which were numerous in the area of 'Wang Khae' (meaning the area of the river where there are no shallow rapids, the water is deep, and there were many crocodiles), an area about 1 km long, are all gone. In addition the snapping turtles, otters and turtles which used to be very numerous in the river are all gone. I think they have been gone for 30 years." The headman, who was 51, was speaking of the changes which had occurred.

In addition he spoke of the wild animals which used to be numerous in the area of the village and the headwaters: "there were elephants, barking deer, deer, wild pigs, mountain goats, tigers and bear. These are all gone. The wild buffalo, wild cattle, giant turtles, peafowl, and doves disappeared about 20 years ago." He explained that the reason that the animals and fish disappeared was because the environmental conditions in the area of the village and the headwaters of the river had changed a great deal.

While surveying the area of the headwaters of the Nam Phong River, I found that the river water from Lat Yai (below the Khun Phong waterfall) down to Ban Phong Nip was clear. But when I surveyed the river about 10

km below this in the area of the Tamo Rapids, the water had become cloudy. This was caused by the water from Huai Fang stream, which flows from the area of Nam Nao District in Phetchabun and carries silt from the area of corn farming.

The inhabitants of Ban Phong Nip village said that the primary reason for the past changes in the river was: "because of the farming done by villagers near the river bank. When the rainy season arrives, the land erodes and washes into the river making it shallow and full of silt. The flow is reduced, and the river is muddy. This has been going on since 1973, but the river still flows year round." This was what caused the visible changes and the effects which have occurred. [passage omitted]

Their opinions were in agreement with those of the inhabitants of Ban Fong Tai Village of Nam Nao District who said in this regard that: "in about 1969 villagers began to plant corn. Now they use chemical fertilizers and herbicides a great deal. In particular in a year when there is a great deal of grass, they have to use 1 liter of herbicide per rai [a rai equals about 0.4 acres]. The villagers are in debt to the Bank for Agriculture and Cooperatives. About 90 percent of the villagers have borrowed from the bank to plant corn. In addition they have borrowed from outside merchants and investors at an interest rate of 500 baht per every 1,000 baht borrowed until harvest. Now they would like to stop planting corn because they are in debt a great deal. They want to plant perennials and have been for about 5 years. They have planted mango, tamarind, litchi and longan trees, but they are limited in their funds because of their debt to the Bank for Agriculture and Cooperatives."

The Nam Phong River Has Been Putrid for 2 Years - Has Its Condition Not Changed Yet?

With regard to the river's pollution below the Ubonrat Dam in Khon Kaen there is still probably no way to correct what has happened since the environmental disaster caused in March 1992 when a sugar factory released molasses into the Nam Phong River. This caused the Nam Phong River and the Chi River to be putrid, and it affected the environment along the entire river to such an extent that it would be difficult to estimate the damage.

This situation has continued for almost 3 years and has not changed. The reason that the river is putrid is because [such incidents] with factories happen time and again. The latest incident occurred during the period of 15 to 18 July 1994 and caused the fish to die along a 5 km stretch "below" the paper mill. This problem is still quiet like a wave about to strike the shore.

Headman Buaphan Chabuanoi, the Chairman of the Nam Phong River Preservation Group, said of this problem that: "the Nam Phong River began to be putrid last July 15th. The small fish died before the others but the catfish and carp are floating as if drugged. So many fish are dying that the villagers are tired of taking them.

When fresh-water fisheries officials were asked about this, they said it was caused by the paper factory. If this happens often, the 'Nam Phong River Preservation Group' will have to do more to follow this problem, and it will send letters to the province and the units involved so that the problem can really be solved."

In addition more changes in the river were pointed out by a villager who made a living catching fish and selling them. He said that: "in the past we could catch fish and sell them for 60,000 to 70,000 baht per year and average more than 100 baht per day. But now we can only average 7,000 to 8,000 baht per year." And he said that the primary reason for the decline in the quantity and variety of fish was that: "since the paper mill was set up there have been fewer fish every year. If they die off every year, what will be left. Last 18 July the fish died off completely. The shrimp all had their heads up on hummocks and their tails down in the water. The shellfish escaped onto the shore. One has to pity the thick-shelled shellfish; they could do nothing and died. The fish which died were catfish, ithai and nuanchan. The most could be found when the water was polluted each time." Mr Phan Nawan, a fisherman aged 64, spoke of the effect the pollution had had on the various fish in the Nam Phong River.

He added that: "fish which disappeared from the Nam Phong River such as sua, khop (similar in appearance to mangkon) and thepho..." cannot be found in the river now.

"The government has said that factories should be built to give the villagers work. We only request that no more factories be brought in. Three factories (meaning the paper mill, the sugar refinery and the liquor distillery) are bad enough. Take them somewhere else." Mr Yairuang Chinphonchai, an old man of 62 who had been through everything and had a village full of descendents, spoke against the more than 40 factories which were to be set up in the "Khok Hin Khao Industrial Estate" in Nam Phong District, Khon Kaen Province, which was to be as near to him as the end of his nose.

Is the Nam Phong River Putrid Again Because of Water Released From the Dam or Because of the Paper Mill?

The great sorrow for the Nam Phong River occurred in 1992 and was caused by a sugar refinery. Not even 3 years later the river is putrid again. The fish suffocate and die in the putrid water and then float on the surface. The smell from the river carries over 10 km.

The newspaper DAILY NEWS of 24 July 1993 reported that the director for electrical generation of area two said that the reason the Nam Phong River was putrid might be because the Ubonrat dam had released water into the canals and stirred up the putrid sediments which had settled throughout the waterways. He thought that the

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situation would not last long and would disappear on its own.

There was also a report that the Deputy Governor of Khon Kaen Province had called on the government units involved as well as representatives of the Electrical Generation Authority of Thailand and representatives of the Pheonix Pulp and Paper Company, who were suspected of causing the pollution, to provide more information.

Mr. Phithak Thanamongkhon, the executive director of the Pheonix mill indicated that the problem which occurred did not involve the factory at all. He expressed the opinion at a meeting that the sediments which caused the problem did not come from the mill because the fish "died above" the mill about 5 km. The report from the area stated that the fish died "below the paper mill" for a distance of more than 5 km.

The Pheonix Pulp and Paper mill has been ordered closed twice for releasing pollution. Is it the reason that the river is putrid again? From the unofficial resolution of the provincial level meeting it would appear not. But soon when the sediment from the again putrid river is examined by experts, we will know for sure who the "culprit" is who made the river putrid again.

VIETNAM

China To Assist in Forestry Projects

BK2309072794 Hanoi VNA in English 0546 GMT
23 Sep 94

[Text] Hanoi VNA September 23—China will help Vietnam regreen a number of regions by [words indistinct] venture with Chinese entrepreneurs to process splinter and bamboo products.

The commitment was made during a ten-day visit to China from Sept. 10 by Professor Dr. Nguyen Quang Ha, minister of forestry.

In the meeting with Chinese Minister of Forestry Xu Youfang, the two ministers agreed on cooperation between the two forestry branches in exchange of scientific and technological information and expansion of joint-venture cooperation on the basis of equality, mutual preference and benefits.

During his stay in China, the Vietnamese forestry minister was received by Chen Junsheng, member of the State Council and visited a number of research institutes of Beijing University, the Academy of Forestry, the [name indistinct] Institute for Tropical Forestry Research and [words indistinct] farms and forest product processing establishments in Shanghai.

POLAND

Irreversible Losses in Groundwater Examined

94WN0381A Warsaw NOWA EUROPA (KONIEC TYGODNIA supplement) in Polish 5-7 Aug 94 p II

[Article by Zofia Lesniewska: "Irreversible Losses; A Water Deficit Exists in Over One-Third of the Country's Area"]

[Text] The World Meteorological Organization has estimated that, during the past 40 years, water consumption in the world has doubled, while its natural reserves have fallen. In the opinion of the scientists, the hydrologists, if the policy for protecting the quantity and quality of water resources does not change, we will face water rationing in the year 2010.

For the average Pole, the problem of water shortage appears cyclically during periods of drought. It is then that the reports and warnings from the Institute of Meteorology and Water Resource Management about our gradually shrinking water resources, both surface and subsurface, and the dropping level of rivers and wells become credible.

Poland, from the standpoint of amount of water available for one statistical inhabitant, ranks at almost the bottom of the European countries. Our indicator, for example, is only slightly higher than that of Egypt, which lies in the subtropical zone.

This is caused by our country's geographic position and uneven water distribution. For several centuries, chroniclers have noted that a drought appears in our country every four or five years. The effect of this is the appearance of steppelike characteristics (for example, in Wielkopolska), similar to those that can be seen in the Hungarian Lowlands and the Iberian Peninsula. During 1950-92, according to criteria accepted in hydrology, there were as many as 21 dry years. But these are not anomalies. We have a climate that, unfortunately, we cannot change.

A Million Years Ago

What should have improved diametrically is the proper utilization of existing water resources.

Our rivers total 850 square km of surface, and, in 1993, they carried 48.2 cubic km [cu km] of water to the sea (the average for the years 1951-85 was 55 cu km). Almost 90 percent of this amount is attributed to the Vistula and the Odra Rivers. The Vistula alone carries an average of approximately 30 cu km of water to its river basin. To put it more graphically, one cu km is a box with dimensions three times larger than the height of the Palace of Culture and Science—that is how much water flows via the Vistula under Warsaw in the course of one month.

The surface waters also include the lakes—33 cu km—and ponds—approximately 1 cu km.

Areas of Water Deficit

It is most difficult of all to estimate the reserves of the subsurface waters originating from the Cretaceous formations of 130-160 million years ago, and those closer to us—the Tertiary and Quaternary of 60 million years ago. Hydrologists estimate them at approximately 3,000 cu km.

Irrational Actions

Although the water resources at man's disposal (we are referring to runoff), calculated on a per capita basis, are not impressive, we continue to "allow" ourselves to release masses of unutilized water into the sea. Only about 10 percent of what flows out of Poland is water that we have used. Eighty percent of our requirements for water are covered by rivers. We draw the remaining 20 percent from underground waters.

Leszek Baginski, director of the department of water resource management in the Ministry of Environmental Protection, admits that the system of water resource management in the past has not been conducive to efficient utilization. In the past 30 years, the level of surface waters has dropped 2 to 3 meters [m].

It was not necessary to wait a long time for the effects of these actions. There is a water deficit in over one-third of the country's area. In addition, water is being wasted. The average Pole uses three times more water than an inhabitant of Western Europe. In past years, measures were taken to artificially draw water out of the land areas that had been determined to be excessively damp. As a result of political decisions, small private mills, together with sluices and small dams, were eliminated. Instead of

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creating new, small retention basins, as other countries do, several less effective large dams were built. They can collect only 3.5 cu km of water, which is approximately 5 percent of the annual runoff. This compares with 12 percent in the Czech Republic and 15 percent in Bulgaria.

Ostroleka Is Ahead of Warsaw

In 1993, water consumption for use in the national economy amounted to 12.4 cu km, a drop of 0.3 cu km, compared with 1992. The small drop, which has held for over 10 years, can be attributed to lower industrial production. Last year, production plants consumed 2.1 cu km less water than in 1980. Among the "economical" are the large power plants, steelmaking mills, and paper-pulp plants, which until recently were the most water intensive. Compared with industry (8.1 cu km of water), the municipal economy requires one-fourth as much, yet, for the past 20 years, has been using twice as much. Of course, the large urban and industrial centers are the leaders. Konin uses the most water, followed by Polaniec and Skawina (where the brown coal mines are). Warsaw is in fifth place, but just ahead of it is...Ostroleka.

Approximately 83 percent of the water consumed for the needs of the economy comes from surface waters, 15 percent from subsurface waters, and only 2 percent from discharges of mine waters from the dewatering of brown coal mines. Most of them are of Class I and Class II cleanliness, and only 38 percent is utilized. The rest is carried away to the surface waters because there is no equipment by which to transport it into the regions in which there is a water deficit.

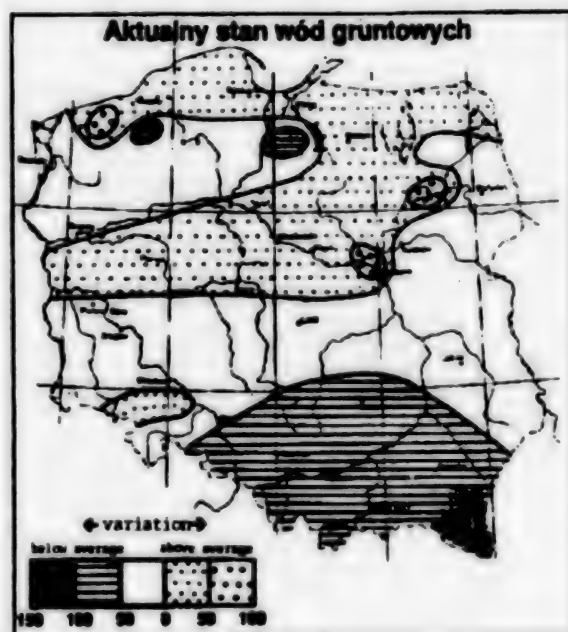
Those branches of industry that do not require potable water for their production—for example, the energy-fuels industry (44 million cu m), electrical machinery (65 million cu m), metallurgical (20 million cu m)—continue to use large amounts of clean subsurface waters. The majority of plants, mainly state-owned, that use water in their technological processes have no incentive to install modern equipment that would reduce the use of water.

The Bad Side of the Coin

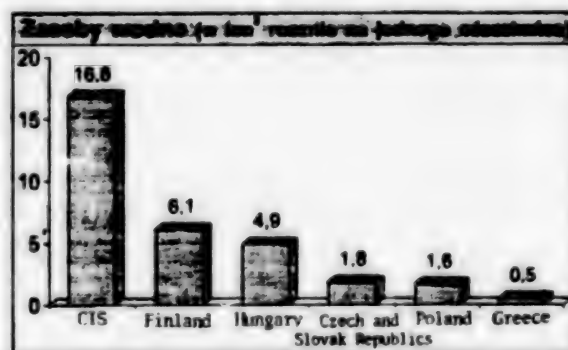
The other side of the coin is what we return to the surface waters after use. In the past three years, over 3 cu km of wastewaters requiring treatment flowed into rivers and lakes each year. Last year, about 50 percent of the industrial plants and 317 towns did not have sewage-treatment plants. As a result, approximately 27 percent of the wastewaters from industry and the municipal economy poisoned the surface waters. Those water-treatment plants that do exist are not fully satisfactory. Only half of them ensure the proper degree of reduction of pollution by a biological method.

As a result, the cleanliness of lakes and rivers began to gradually worsen. In 1992, the State Environmental Protection Inspectorate examined 108 lakes. Only two met Class I cleanliness standards: Dmitrowo and Dlugie

Current State of Groundwater



Water Resources (in cu km per capita per year)



Sejnskie in Suwalki Voivodship. Over 60 percent were classified III or worse. It was the same with the cleanliness of rivers. The share of Class I waters dropped from 32 percent in 1964-67 to 2.4 percent in 1992. This applies only to small sections of the river headlands.

Director Baginski remarked that Poland's situation is bad because its principle mineral riches and industry are concentrated in the southern part of the country, where the rivers have their sources. And the water is already polluted before it reaches the sea.

The growing problem in the past few years is the wastewaters from the countryside areas. In 1993, poor-quality water was found in 17 percent of the local pipelines, 45

percent of the public wells, and 53 percent of the household wells, from which over 50 percent of the rural population draws water.

Urgent Changes

For several years, the correct and efficient management of water resources has been a priority task. First of all, a new legal regulation is needed; the amending of the 1974 law on water has been under way for almost five years. The old regulations in effect during the period of a centrally guided planned economy brought about a situation in which water was regarded as an instrument—a generally accessible asset, free and inexhaustible. Investment priorities and finances allocated from the state budget were decided, at that time, by the clout and contacts of the individual voivodes and users. However, there were no joint actions and programs applying to the river basins into which the wastewaters from the various voivodships were flowing.

New laws will regulate, among other things, the matter of ownership and what it entails—that is, responsibility for protection of the environment and the damages that are caused. But one of the most important problems connected with proper management of water resources are, in the opinion of the Environmental Protection Ministry, elimination of the basic sources of waste, reduction of the consumption of water in the individual sectors of

the national economy, and restrictions on the use of subsurface waters by industry.

Economic instruments should also play an increasingly greater role. There should be a system of progressive fees for the use of water. These fees will force the users to apply water-conservation methods and eliminate waste.

Unfortunately, in 1992, only 47 percent of the plants had water-recirculation (closed-cycle) systems, making it possible to use the same water many times. All of the investments connected with the construction of new water-treatment plants, making changes in water-intensive production methods, require large amounts of money.

This year, approximately 2 trillion zlotys [Z] have been allocated in the budget for water-resource management. Of this, Z1.4 trillion are to be earmarked for large investments—completion of construction of dams—and Z600 billion for repairs of existing infrastructure. In the opinion of director Baginski, this will meet 40 percent of our minimum requirements.

Furthermore, it should be clearly stated that if, starting today, all plants and residents began to release only clean water into the rivers, it would still not mean that in a year our surface waters would be clean. The losses caused by pollution throughout the decades are, for the most part, irreversible.

**Management of Water Resources and Wastewater
in Branches of Industry Using Water for Production Purposes
(in cu hectometers)**

	Water Consumption	Water From Own Intakes		Wastewater Carried Away to Surface Waters			
		Surface	Subsurface	Total	Cooling Waters (conventionally clean)	Treated	Untreated
Total 1980	10,415.1	9,168.5	642.9	9,668.6	7,329.2	1,660.4	679.0
Total 1993	8,078.6	7,471.8	415.7	7,757.1	6,587.0	1,026.0	144.0
Energy industry	6,594.3	6,559.2	25.1	6,382.9	6,321.7	54.4	6.8
Chemical industry	496.2	440.9	56.6	429.9	199.0	200.0	30.9
Paper industry	148.5	133.4	7.8	136.4	6.1	127.7	2.7
Food industry	171.8	50.7	111.3	77.6	21.1	48.5	8.0

Radioactive Contamination of Mushrooms by Chernobyl Viewed

WS1509144694 Warsaw RZECZPOSPOLITA in Polish
22 Aug 94 p 7

[Report by Krystyna Forowicz: "We Do Not Drink With Mushrooms"]

[Text] The mushroom season is fast approaching, and with it the annually reoccurring post-Chernobyl dilemmas. Readers are already asking: Are mushrooms still contaminated with cesium this year, and which regions of the country are safest for mushroom picking? Plus, most importantly of all, should you even eat the mushrooms.

For the first time, we have a credible report on the volume and range of radioactive isotope contamination in Poland resulting from the explosion at the Chernobyl nuclear power plant eight years ago. Following four years of research within the Litosphere Protection project, the National Institute of Geology in Warsaw has developed radio-ecological maps (utilizing gamma-spectroscopy methods) of the concentration of natural radionuclides (uranium-282, thorium-232, potassium-40) and post-Chernobyl cesium contamination, with a scale of 1:750,000.

Scientists have found cesium contamination to be highest in southwestern Poland, in the eastern part of the

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Sudety Mountains tectonic foreland and the Silesian Plain. The contaminated zone stretches from the Polish-Czech border in the Kłodzko Valley all the way to Warsaw. There are...

Three Anomalous Zones

The so-called Opole anomaly, with an area of 4,500 square km covers the Walbrzych, Opole and Częstochowa Voivodships. This is where the concentration of cesium is highest, reaching 96 kBq [kilo-barque] per square meter in the vicinities of Nysa, as compared with the national average of 4.67 kBq/square meter. The Radom anomaly (Piotrków Trybunalski Voivodship), stretching north of the city and with a small area, has 20 kBq/square meter. The third zone, the Warsaw anomaly, lies between Rawa Mazowiecka and Wolomin (Skierniewice and Warsaw Voivodships). The concentration of cesium in Pruszków and Wesoła reach 30 kBq/square meter.

Contaminated regions also include: Beskid Śląski, Beskid Mały, Kotlina Oświęcimska (Bielsko-Biała Voivodship)—the concentration of cesium in these areas reaches 25 kBq/square meter.

Hot Points

...are places where cesium concentration levels reach 50 kBq/square meter, or even exceed 70 kBq/square meter. Such hot points are located in Wysoczyzna Siedlecka (Bielsk Podlaski Upland) and the Wysoczyzna Bielska Podlaskiego (Bielsk Podlaski Upland): between Kock, Siedlce and Czeremcha (Siedlce, Białystok, Biała Podlaska Voivodships). Anomalies of a similar area appear in the northeast, in the Puszcza Kurpiowska (Ostrołęka province), e.g. in the vicinity of Myszyniec and in the Mazury-Międzyzdroje lake district.

Singular occurrences of cesium above a level of 15 kBq/square meter have been reported in Szczecin Voivodship, between Insk and Maszew, as well as in Elbląg Voivodship, in the vicinity of Prabuty.

The Opole region causes the greatest concern among scientists. Contamination levels here are so high, that

the National Institute of Geology and the Central Laboratory of Radiological Protection are planning to conduct research of cesium content in crops, and are considering developing detailed maps with a scale of 1:100,000.

Cesium, or—more specifically—its isotope with an atomic weight of 137, is the main product of the explosion in Chernobyl. It causes pollution of the air, water, and soil. It accumulates in plant seeds, animals, and fish. Its half-life is 27 years. Mushrooms, more than other plants and fruit, accumulate substances absorbed from the ground (not only cesium, but also heavy metals).

Among Mushrooms

...the species that cumulates the most cesium is the *Boletus scaber*, as its gills contain phenol cytochrome.

Mushrooms are dangerous because they remain in the digestive system longer than other foods (they are not as easily digested), and thus are an internal source of radiation for a longer period of time, which in turn has negative effects on delicate internal organs, such as the stomach walls and intestines.

Compounds containing cesium, on the other hand, are not fully soluble. Therefore, perhaps not all of the cesium radioactivity is absorbed by the organism. Boiling the *Boletus scaber* for approximately two hours in distilled water causes 66 percent of radioactive cesium to be absorbed by the liquid (such experiments have been conducted).

Although the amount of mushrooms we consume is limited, it is best not to eat mushrooms from the most contaminated regions.

Ryszard Strzelecki, Stanisław Wolkowicz, and Paweł Lewandowski—authors of the map of Poland detailing cesium concentration [published alongside the article]—used data from some 20,000 control points. Previous maps of cesium concentration in Poland (printed without scale) were based on measurements from 343 sites randomly dispersed throughout the country.

REGIONAL AFFAIRS

Southern Cone Environment

PY1609132094

[Editorial Report] The following is a compilation of reports on environmental issues monitored through 6 September:

BOLIVIA

Research carried out by international organizations reveals that, according to the current situation, some 600 hectares of land in Tarija are affected each year as a result of erosion caused by a deforestation process. It has been established that up to now, a total of 128,000 hectares, extending up the Guadalquivir River bank, are affected by erosion in the central valley of Tarija. The lack of shrubbery to retain rainwater and strong winds caused by the lack of natural barriers, in addition to burning of fields, the deficient plowing methods used in the region, and the bad use of soil are contributing to making this region poor for agriculture. (La Paz HOY in Spanish 17 Aug 94 p 5)

Officials of the Wildlife Department of the Forestal Development Center seized a shipment of approximately 10,000 cayman and lizard hides being taken from Beni to Paraguay for sale. Although the owners of the vehicle transporting the shipment abandoned it in Guarayos, the individuals responsible for this new environmental disaster have already been identified. (Santa Cruz EL MUNDO in Spanish 23 Aug 94 p 10)

According to Forestal Development Center Director Alberto Escalante Mogro, the burning of land between the months of August and September by some 40,000 peasant families and some 5,000 indigenous families in the tropical region of Cochabamba causes the deforestation of some 20,000 hectares per year. Escalante added that this procedure used by the local inhabitants cannot be controlled because they only use the land to produce their basic needs, and that agricultural development projects for this region have always had a high environmental cost. (Cochabamba LOS TIEMPOS in Spanish 5 Sep 94 p A4)

Cochabamba Development Corporation, CORDECO, official Luis Carlos Sanchez has disclosed that, according to research carried out by a German consultant company, rainfall during the past five years in Cochabamba valley has dropped by 40 percent due to a series of climatic factors that have contributed to the drought in the region. Sanchez explained that CORDECO has several projects in mind to increase the water supply and to irrigate some 10,000 to 12,000 hectares for agricultural purposes. It also has an emergency plan for the supply of potable water which includes the drilling of water wells in the rural areas. (La Paz PRESENCIA in Spanish 6 Sep 94 p 1)

CHILE

The National Forestal Corporation, Conaf, has announced the creation of a new national reserve in the Seventh Region, called Bellotos de Melado, designed to preserve the acorn of the south [belloto del sur], an endangered native species of the region. The reserve has 417 hectares and was identified as one of the areas where the trichahue parrot, also endangered, feeds. (Santiago LA TERCERA in Spanish 8 Aug 94 p 4)

The Interior Ministry National Emergency Office, Onemi, has decided to create a Dangerous Substances Registration and Database Center that will be in charge of gathering as much information as possible on substances handled in the country that may pose a threat to the people. The project will materialize at the National Firemen's Academy, where an agreement to this effect will be signed by representatives of Carabineros, the health under secretariat, the National Firemen's Board, and Onemi, among other institutions. This agreement will help permanently maintain, update, and perfect the Center. In order to provide a nationwide service to all the member organizations of the national civil protection system, the new database will be linked to the regional governments' computer network. The project will initially be linked to the 13 regional intendencies and 40 provincial administrations. The information fed into the system will be supplied by the aforementioned organizations as well as some international ones. (Santiago LA TERCERA in Spanish 8 Aug 94 p 4)

The Forestal Neltum Carranco Company in Panguipulli, 600 km south of Santiago, has been charged a \$370,000 fine, the highest in Chilean history, for the illegal destruction of a large forest of rauli and coigue trees, native of the Chilean rainforest, one of the few of its kind left on this planet. In addition to the fine, the ruling on this case brought before the court by Conaf, orders the confiscation of 44,527 inches of rauli wood and 15,272 inches of coigue and the reforestation of the devastated area. (Madrid EFE in Spanish 1619 GMT 25 Aug 94)

PARAGUAY

A significant amount of dead fish—of the dorado, armado, and mandi'i species—was spotted on the bank of the main branch of the Parana river. Although the reason has not yet been determined, it is believed the fish could have died due to the organic decay of flooded woods, when they fell through the Yacyreta dam sluice gate, or probably suffocated in the lift of the dam's spillway. Mauro Mendoza, president of the Monday Fishing Club of Ciudad del Este, announced the creation of the federation of fishing clubs on the Parana River to demand that Congress investigate this disaster. (Asuncion ABC COLOR in Spanish 14 Aug 94 p 21)

Experts of two consultant enterprises are working to rescue the various wild species that live in the Yacyreta dam area and will be affected by the dam's lake. In addition to transferring the animals, the experts are

keeping records on the characteristics of the fauna at the site when the project was started. (Asuncion NOTICIAS in Spanish 14 Aug 94 pp 20, 21)

Encarnacion city's municipal slaughterhouse, located on the banks of the Mboi Ca'e stream, one of the main tributaries of the Parana river, spills its organic waste through an open channel straight into this waterway that is used by inhabitants of the area for cleaning purposes. The filling of the Yacyreta artificial lake has reduced the force of the stream's water flow, causing the waste to pile up and block the stream which, in turn, is increasing the stream water level and flooding the neighboring area. Encarnacion Health Director Luis Maria Hauron has stated that this problem could be solved if the slaughterhouse is relocated. This task should be carried out by the Yacyreta Binational Enterprise because it is located within the area affected by the dam. (Asuncion ABC COLOR in Spanish 15 Aug 94 p 59)

PERU

Resolution 321-94-PE, published in the official gazette yesterday, prohibits the fishing and, still less, the processing and marketing of dolphins, porpoises, and other smaller cetaceans in an attempt to stop the indiscriminate catching, in Peruvian waters, of these members of the whale species, especially dolphins. Those who violate this resolution are liable to be punished in accordance with the General Fisheries Law. (Lima EL COMERCIO in Spanish 9 aug 94 p A1)

BOLIVIA

Bolivia's Sanchez Terms Pilcomayo 'Ecological Tragedy'

PY1309221994 Asuncion ABC COLOR in Spanish
11 Sep 94 p 13

[Text] Bolivia's President Gonzalo Sanchez de Lozada granted us an exclusive interview in Rio de Janeiro following the deliberations of the Eighth Summit of Rio Group Presidents. During the brief interview, Sanchez de Lozada defined his country's position on the sensitive Pilcomayo issue. Asked about the problem, the Bolivian president said that as time goes by the damage caused by the river diversion increases. It is known that Bolivia is experiencing irreparable damage caused by the widespread death of fish.

Sanchez de Lozada said the damage must be corrected based on the understanding and friendship of neighboring countries interested in the issue.

Asked if he would be ready to submit the case to the consideration of organizations such as the Rio Group or Mercosur [Common Market of the South], Sanchez de Lozada said he would be in agreement with such an initiative. The Bolivian president added that it would be entirely possible to ask international organizations to make an analysis of the situation, and if possible propose

a resolution. "We think any initiative on the matter would be positive," the president said.

Sanchez underlined that he could not rule out this possibility. He added that what was in question was brotherly countries, and it would be appropriate to use all available mechanisms among Paraguay, Argentina, and Bolivia before resorting to other mechanisms. "I think we will find a solution, or at least we hope we will be able to," Sanchez de Lozada said.

Asked about the document signed with his Paraguayan counterpart Juan Carlos Wasmosy in Santa Cruz last year declaring the Pilcomayo area "a zone of high ecological risk," Sanchez de Lozada said that progress is being made. He stressed that the three countries have decided to create an institution exclusively dedicated to studying the entire Pilcomayo problem. The novel thing about this institution is that the director will not be a Paraguayan, Argentine, or Bolivian citizen.

Sanchez de Lozada stressed that what we need is a true solution, and "not a continuous postponement of what amounts to an ecological tragedy." We need a definitive solution to control this ecological tragedy, he insisted.

Paraguayan Actions

Our country is determined to carry out the necessary work to return the river to its normal bed. This is a firm commitment resulting from Argentina's delay in fulfilling its commitments. Apparently the Menem Government does not like this position. However, "Paraguay has no alternative but to solve the problem on its own," a high-ranking Paraguayan Government official said.

BRAZIL

Judge Opposes Nuclear Waste Dump in Minas Gerais

PY2209183594 Sao Paulo AGENCIA ESTADO
in Portuguese 1919 GMT 21 Sep 94

[Text] Belo Horizonte, 21 Sep (AE)—Ronaldo Tovani, judge of Caldas county, southern Minas Gerais, today began granting interviews to various mass media of the state. He thus began a campaign to prevent 732 tons of yellow cake [preceding two words in English] (enriched uranium) and 500 tons of Cake II (a material that contains uranium and thorium, which are radioactive elements) from being transported from the Santo Amaro plant (Usam), in Sao Paulo, to Caldas, where they would be held. The material is scheduled to arrive in Caldas in December, and will be placed in Nuclear Industries of Brazil (Ineb) storage facilities.

"If the Minas Gerais government permits this, the state will be known as a radioactive waste dump," Tovani said. In 1982, Tovani himself issued a provisional resolution demanding that, before bringing the radioactive material, Ineb build appropriate storage facilities for the products. The material had to be taken from Usam,

which is unsafe. According to Tovani, the storage facilities are ready and "for the time being they are within the law." "Yet with time they will deteriorate, and no one can guarantee their regular maintenance," he said.

According to Tovani, Sao Paulo managed to get rid of the material thanks to the state government pressure on the Secretariat of Strategic Affairs of the federal government. "The Secretariat had no place to put this material, and found Minas Gerais, whose people are calm and docile, and who will welcome the material," he said.

According to Jose Claudio Junqueira, director of the environmental control department of the State Environment Preservation Foundation (FEAM), the Minas Gerais government is not officially aware of Ineb's decision to store the material in Caldas.

JAMAICA

Prime Minister Says Government To Review Land Policies

FL2209120894 Castries HTS Caribvision Television in English 1945 GMT 21 Sep 94

[From the "Caribbean Evening News" program]

[Text] The Jamaica Government will be undertaking as a matter of urgency a review of more than 100 pieces of land and land-related legislation. Oliver Fagan takes a closer look at the so-called green paper on land reform as tabled by Prime Minister P.J. Patterson in the Jamaica parliament:

[Begin recording] **Fagan:** It was an unusually short session. Immediately following the placement of the mace, parliament resumed its sitting on Tuesday [20 September] afternoon. This time there was pleasure before business as incoming representative for South St. Catherine (Fitz Jackson) was sworn in and welcomed by government and opposition members. Prime Minister P.J. Patterson then repeated his apology to former Jamaica Labor Party MP (Douglas Golding) over mistaken allegations made against him, and the house records were duly corrected. The prime minister then tabled Green Paper Number 4 on land reform. He says the creation of a land policy is a government priority. Mr. Patterson said the draft policy is an attempt to provide a framework for the proper management and the development of land.

Patterson: [in progress] ...its objective: the need for a uniform, comprehensive, and integrated land management system which would provide accurate and timely data on such issues as natural resources, the environment, land ownership, land use, transport, communication, mapping, demography, and other socioeconomic factors.

Fagan: The draft policy also addresses possession and divestment of government lands. With government being the nation's largest land owner, having over 45,000

land parcels, the land divestment policy is an attempt to relieve problems associated with landlessness. But the prime minister admitted that current institutional arrangements for the management of the country's resources is both inefficient and ineffective and is having a negative impact on social and economic development.

Patterson: The plethora of government ministries, agencies, and departments which have responsibility for some aspect of land and land-related activities have partly contributed to this. Overlap and fragmentation often result in conflicting development decisions, delays in planning and development processes, and sometimes even conflicts in the implementation of social and infrastructural development.

Fagan: He says government is attempting to reduce the number of organizations dealing in land and called for a review of land-related regulations. Government intends to replace some existing laws and simplify others. A thorough land policy is expected to be in place early next year. [end recording]

MEXICO

Officials on Environmental Issues, Trade, Toxic Waste

PA0809182694 Mexico City LA JORNADA in Spanish 7 Sep 94 p 20

[Report by correspondent David Carrizales]

[Text] Monterrey, Nuevo Leon, 6 September—Federal Environment Prosecutor Miguel Limon Rojas has asserted that Mexico will not allow the United States or Canada to resort to environmental issues to camouflage unfair trade practices.

On the other hand, Lilia Albert, vice president of the Toxicology Association (ALATOX) stressed that Mexican controls over the numerous kinds of hazardous industrial waste are practically nonexistent since most of the environmental laws are not being implemented.

During a meeting with ALATOX representatives, Limon Rojas pointed out that the Profepa [Office of the Federal Prosecutor for the Environment] will recommend that the Finance and Public Credit Secretariat earmark funds collected as environmental taxes to purchase more and improved antipollution equipment.

Since 1992, he stated, Profepa has ordered the complete shutdown of 227 companies, as well as the partial closure of 554 companies.

ALATOX specialist Lilia Albert pointed out at the International Symposium on Environmental Quality that the final destination of about 97 and 99 percent of all toxic waste in Mexico is unknown. There is also reliable data on storage or dump sites because authorities

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tend to overstate accomplishments and conceal shortcomings.

Albert believes that hazardous waste produced by national industries might be being stored, thrown away secretly, mixed with normal garbage, and, in the case of liquids, simply poured into drainage systems.

She indicated that she was aware of nearly 110 "authorized" secret dumps in Ciudad Juarez, Chihuahua, as well as 35 in San Luis Potosi, all in abandoned urban

areas. The ALATOX specialist added that throughout Mexico, only the Mina, Nuevo Leon dump is operating under normal conditions.

The ALATOX representative pointed out that since 1989, authorities have recognized that approximately 146 million tons of hazardous industrial waste is being produced annually in Mexico. Of this amount, 5 million tons have been classified as toxic. Albert warned that in any case the amounts made public do not coincide with Mexico's industrial production figures.

PAKISTAN

Council Says Chemical Plant Will Not Harm Environment*BK1209064794 Islamabad THE NATION in English 12 Sep 94 p 9*

[Report by Akbar Sial]

[Text] Lahore - Pakistan Council for Scientific and Industrial Research (PCSIR) has certified that the Chlor Alkali chemical plant, Sheikhpura Faisalabad Road would have no negative impact on ecological balance of the area and subsequently permitted installation of the plant being imported from Denmark, THE NATION learnt reliably.

The plant is being installed by Ravi Alkali's Ltd, and its first phase would be completed by the end of December 1994.

The PCSIR Commission which was assigned the task of investigating into the environmental arrangements of the importers of the plants, in its report has expressed its satisfaction over the arrangement of the entrepreneurs to avoid environmental hazards.

This would be the first plant in Pakistan to which will chemically treat all its wastes or consume as by products in the production process of other chemical products and no liquid chemical would be permitted to come out the plant premises. [sentence as published]

On the apprehension of Greenpeace in Denmark and WWF [World Wildlife Fund] the government of Pakistan PCSIR was directed to investigate into the environmental aspects of the Chlor-Alkali Plant which is being imported by Ravi Alkali's Limited from Denmark.

On the other hand Chief Executive of the group Tariq Jamil while talking to THE NATION pointed out that every waste of the plant would be recycled and used for the manufacturing process of other products. For example, he said, Chlorine would be turned to Hydro Chloric Acid which would be used in several other products. Hydro Chloric Acid would be transformed into Calcium Chloride and afterwards another process into Sodium Chloride which is useful product and consumed in various industries hence there are no chances of emission of fugitive gases.

Tariq Jameel informed that the plant is designed in trip mechanism through which operations would be automatically switched off in case of any leakage of gas or liquid. Meanwhile mercury emission which was the focus of criticism by the environment protection agencies would not only limited as compared to other plants working in Pakistan but it would be treated most carefully with no harmful implication environmentally.

Responding to a question about allegations levelled by some agencies through media Tariq Jameel pointed out that basically the plant was established in Copenhagen

(Denmark) around 10 year before but due to global trade recession and less demand for the products of this plants as chlor alkalis and fetti acids [as published] the management of the plant D.S. industries decided to close down the plant also due to the fact that land of the plant turned out to be more profitable being urban property adjacent of the city of Copenhagen.

While providing the details of the transaction of the plant he informed that they purchased the plant by after competing with Chinese and Syrian investors. He said they also submitted bid after receiving green signal from Environment Protection Agency of Pakistan (EPA) and the Ministry of Industries Denmark.

He said due to some reports published in a section of newspapers WWF and EPA Copenhagen, EPA Pakistan and now PCSIR has again green signal to the import of the plant.

Ravi Alkalies Ltd., is associated with and partner of a world renowned chemical enterprise based in Germany Hoechst in its two concerns as Hoechst Ravi Chemicals and Hoechst-Ravi Polymers.

Setting up Chor-Alkali Plant will produce 10,000 tons of caustic soda and 9,000 tons of Chlorine against its total capacity of 26,000 tons of caustic soda and 23,000 tons of chlorine to ensure total sale of all the product in the local market.

The products along with fatty acids are used in the production process of various industries including textiles, paper, paper pulp, soaps, detergents, drugs, foods etc.

This plant will also save precious foreign exchange to the tune of US \$1.5 to 1.6 billion which are spent on the import of these chemicals.

Editorial Bemoans Degraded Environment, Urges Action*BK1609124194 Karachi DAWN in English 11 Sep 94 p 11*

[Editorial: "Environmental Legislation"]

[Text] The government plans to introduce new legislation for the protection of the environment, replacing the outdated Environment Protection Ordinance (EPO) of 1983. The new legislation will consolidate existing laws, remove flaws, deficiencies and sources of confusion and provide effective legislative cover for the implementation of the National Conservation Strategy. The EPO did not adequately encompass the range of issues involved in environment, nor did it fully reflect the contemporary concerns regarding ecological betterment and conservation. Its effectiveness was further reduced by the lack of enforcement and implementation, which forms the weakest link in the environment protection regulation. Failure to respond to new challenges and to formulate

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relevant laws and forcefully implement them has cost the country dearly in terms of environmental degradation.

Biomass reserves and other natural resources are dwindling rapidly, adversely affecting primary productivity and economic growth. The country's densely populated cities are plagued by serious health hazards arising from a high level of sulphur dioxide, lead and other harmful chemicals polluting air and water. No effective step has been taken to check atmospheric pollution even though some of the existing laws could have been applied more methodically to check the menace. A stage has been reached where the ratio of carbon monoxide in the air has far exceeded the safe limits, especially in the major cities. Toxic waste, hard metal and pathogenic bacteria contaminate the water bodies and hazardous wastes and untreated industrial effluents continue to be discharged into rivers and open spaces without the slightest compunction or any legal culpability. The marine environment has become heavily polluted and is causing additional ecological hazards. Seeing our apathy in the matter, foreign companies have started dumping highly dangerous chemical waste into Pakistan's territorial waters. Mangroves have been devastated and as a consequence, fish stocks in coastal and sea waters have drastically reduced. Waterlogging and salinity have converted millions of hectares of fertile soil into virtual wasteland, while pressure is mounting on the available lands as a result of unchecked population increases. This reckless destruction of the natural resources and the already fragile ecosystem Pakistan can allow only at its peril. Loss of productivity will intensify desertification and lead to an increase in poverty, which, in turn, becomes a major factor in the perpetuation and aggravation of environmental degradation.

While updating the environment legislation, the challenge before the government is to provide a credible and effective framework for the protection of the environment, and, concurrently, to adopt policies to promote sustainable development. In this connection, the conference on South Asia Cooperative Environment Programme (SACEP), held in Islamabad recently, identified a number of priority areas to check ecological damage and strike a balance between socioeconomic needs and environmental protection. These included environment impact assessment and cost/benefit analysis as well as adoption of appropriate environment and development technology for harnessing renewable and reusable resources. Environment legislation, together with practical measures for the conservation of the ecosystem,

including forest, soil and water resources, can be a vital step towards the objective of balanced and sustainable development.

SAUDI ARABIA

Minister Comments on Government's Environmental Policy

LD1209144494 Riyadh SPA in English 1306 GMT
12 Sep 94

[Text] Riyadh, 12 September (SPA)—Communications Minister Husayn al-Mansuri has stressed that all accomplishments realized by the kingdom under the leadership of the Custodian of the Two Holy Mosques King Fahd Bin-'Abd-al-'Aziz aimed primarily to serve Saudi citizens and provide means of comfort, security and reassurance for them.

In a statement to SPA, al-Mansuri stressed that Saudi citizens are the real treasure of this country and pointed out that the Saudi Government also works to protect them from pollution and automobile accidents.

On the occasion of the issuance of a Communications Ministry report on its role in limiting pollution and protecting the environment, al-Mansuri stated that the kingdom is at the forefront of states which attach great importance to conservation and protection of the environment.

He said the state, represented by the Ministry of Communications, has attached great importance to the environmental factor during the development of the roads network.

He explained that many circular roads were established around major cities to facilitate the flow of traffic and protect the cities from pollution caused by car exhaust and the noise produced by these cars.

He also pointed to the planting of trees on major routes inside and around cities, cleaning the roads from harmful waste and reducing the trips made by small passenger cars by introducing the Saudi Arabian Transports Company (SAPTCO) service for commuting students or employees.

Finally, he stressed the dangers posed by various types of pollution which threaten human life on earth and pointed out that many countries around the globe exert intensive efforts to fight these dangers.

He also praised the idea of the environmental awareness project in the kingdom which reflects the importance attached to this vital field by the Saudi Government.

RUSSIA

Nuclear Plant Head Proposes Joint Toxic Waste Site

*LD1209093294 Moscow ITAR-TASS in English
0818 GMT 12 Sep 94*

[By ITAR-TASS]

[Text] Sosnovyy Bor (Leningrad region) September 12 TASS—Anatoliy Yeperin, director of the Leningrad nuclear power plant, has proposed forming a joint burial for all highly toxic nuclear wastes in Russia in an interview with ITAR-TASS.

According to him, detached burials of nuclear waste products scattered across the country may pose a great danger under certain circumstances. "It will be much safer for Russians to accumulate all (nuclear) wastes in a single properly outfitted and monitored far-off site, for instance, in the island of Novaya Zemlya or somewhere else in the northern latitudes where there are already burials of nuclear wastes from nuclear submarines," Yeperin said.

There is a specialized combined works near the town of Sosnovyy Bor in the Leningrad region which accumulates waste products from 200 plants based in St. Petersburg and the region which have to do with nuclear fuel in some way. Its capacities have been largely exhausted. That is why the problem of burying nuclear wastes has acquired so much importance in the north-western part of Russia.

In expert opinion, similar situations are emerging in other regions as well.

Under the circumstances, Yeperin's proposal arouses evident interest.

Minister on Japanese Building Nuclear Waste Plant

*LD0809140994 Moscow ITAR-TASS in English
1327 GMT 8 Sep 94*

[By ITAR-TASS diplomatic correspondent Aleksandr Kopnov]

[Text] Moscow September 8 TASS—Russian Nuclear Power Minister Viktor Mikhaylov dismissed on Thursday allegations of the Japanese mass media that he objected to Japan's assistance in building nuclear waste recycling facilities on Russian territory.

Commenting on the situation around the Russian-Japanese agreements on building facilities in Russia's Far East to reprocess radioactive waste of the Pacific Fleet, the minister noted it "provoked concern."

According to him, Russian and Japanese experts have prepared a feasibility study for the construction of recycling plants designed to do away with the practice of liquid waste dumping into the open sea. However, for

lack of funding by the Russian side and because of Japan's non-compliance with its obligations to allocate money for this purpose, all activities on the project have been virtually frozen. This cannot but "cast doubt on the feasibility of such construction," Mikhaylov pointed out.

At the same time, Russian engineers have developed the first pilot unit for reprocessing nuclear waste, which was delivered to the Pacific Fleet a month ago. This equipment could help solve the problem in the future.

Following last October's dumping by a Pacific Fleet vessel of 900 tons of low-radioactive liquid wastes in the Sea of Japan, Russia and Japan agreed that the Japanese side would finance the construction of facilities for their recycling on Russian soil. Tokyo undertook to earmark funds for this purpose as part of the announced 100 mln dollars' worth of assistance in eliminating former Soviet nuclear weapons.

Nuclear Waste Processing Plant Planned for Far East in 1995

*LD0809103094 Moscow Radio Rossii Network
in Russian 0900 GMT 8 Sep 94*

[Text] The construction of a nuclear waste processing enterprise should be started in the Far East in 1995. This was reported by Russia's Atomic Energy Minister Viktor Mikhaylov in an interview with the RIA agency. He believes that the enterprise should be built by Russian organizations, while the Maritime authorities would like to use the services of Japanese firms. In the minister's opinion, the country's own organizations will be able to do the work at less cost and no worse than Japanese ones.

The minister recalled that Russia has still not received any of the funds Tokyo promised two years ago to help with nuclear disarmament. He added that the Japanese tanker, given this year to store Russian nuclear waste, turned out to be unfit for such purposes.

Water Ecology, Technology Forum Held in Moscow

*MM1309100694 Moscow TRUD in Russian 10 Sep 94
p 2*

[Vladimir Basmanov: "Where Would We Be Without Water?"]

[Text] The second international "Water: Ecology and Technology" congress ended in Moscow yesterday.

Specialists have recently been sounding the alarm increasingly frequently: Rivers, lakes, ponds, and other reservoirs are becoming increasingly polluted. The terrible concept of "acid rain" no longer surprises anyone. The elaboration of new water purification technologies and systems for transporting and storing water has become a necessity.

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The "Water: Ecology and Technology" congress was devoted to this range of problems. Dozens of organizations sponsored it, including the municipal enterprise "Berliner Vasser Betriebe" (Germany), "Vodokanal Sankt-Peterburga," and the "Gidromashservis" joint-stock company.... Mankind's economic activity is leading to the further pollution of water supplies, particularly open ones, it was noted at the congress. The need to toughen up control over the purification of waste water and the quality of drinking water was emphasized. To this end, it is necessary to make the broadest use of sources of underground fresh water in economic and drinking water supplies. Incidentally, at an exhibition of equipment for extracting water from artesian wells, which is going on in parallel with the congress, the technologies of our own "Gidromashservis" were represented extensively. This joint-stock company offers equipment for major industrial enterprises, for the municipal housing sector, and also for small private farms.

"Our tasks are to develop supplies of pumping equipment, control stations, and pipelines as extensively as possible," Artem Molchanov, general director of "Gidromashservis," said. "The problems which the country is coming up against in its water management activity are clear even to a nonspecialist. The situation has particularly deteriorated following the collapse of the USSR, as a result of which a lot of enterprises which produce pumps and other equipment ended up outside Russia. Therefore we are now establishing cooperation with the Chisinau plant for deep-well pumps, for instance, and we are helping them to organize the production of high-technology items, and are introducing state-of-the-art materials and advanced technologies."

Water Resources Agreement

944F1404D Moscow DIPLOMATICHESKIY VESTNIK
in Russian No 11-12, Jun 94 [signed to press 27 Jun 94]
pp 11-12

[*"Agreement Between the Government of the Russian Federation and the Government of the PRC on Cooperation in the Sphere of the Protection, Regulation, and Reproduction of Live Water Resources in the Border Waters of the Amur and Ussuri Rivers"*]

[Text] The Government of the Russian Federation and the Government of the PRC, hereinafter called the Parties, in accordance with the provisions of the Agreement Between the Government of the USSR and the Government of the PRC on Cooperation in the Sphere of Fish Industry of 4 October 1988,

proceeding from a common interest in the rational use of the live water resources of the basin of the Amur and Ussuri Rivers,

have agreed as hereunder:

Article 1

The Parties will cooperate on questions of management of the live water resources in the border waters of the Amur and the Ussuri.

This agreement shall extend to the entire water area of the course of the River Amur from the confluence of the Rivers Argun and Shilka and the River Ussuri from the issue into it of the River Sungach and also to the adjacent bodies of water.

The Parties will also cooperate on the question of the protection and reproduction of anadromous species of fish outside of the border bodies of water also with regard to the biological singularities of these species of fish and the corresponding provisions of international law.

Article 2

No provisions of this agreement shall have any bearing on problems connected with border issues.

Article 3

The cooperation shall be exercised in accordance with the Rules for the Protection, Regulation, and Reproduction of Fish Stocks in the Border Waters of the Amur and Ussuri Rivers, hereinafter called the Rules, agreed by the Parties, which are an inalienable part of this agreement.

Article 4

The Parties shall regulate the fishing for live water resources, including that practiced by amateur fishermen of both Parties, and supervise compliance with the Rules and also apply the appropriate measures of punishment in respect to those that break the Rules.

The Parties shall notify each other of instances of a violation of the Rules and also of the measures of punishment adopted in respect to the transgressors.

Article 5

The Parties shall devise and implement joint measures to protect live water resources and regulate fishing and the reproduction of fish stocks in the bodies of water determined by this agreement and also to create fish-breeding enterprises.

Article 6

The Parties undertake to monitor the ecological state of the bodies of water determined by this agreement and to maintain it and also to adopt the necessary measures to prevent pollution and disturbance of the natural habitat.

Article 7

The Parties shall adopt the necessary measures to ensure the safety of the fishermen conducting their business and to prevent accidents in the border bodies of water.

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Article 8

Cooperation within the framework of this agreement shall be exercised by the Mixed Commission formed in accordance with the Agreement Between the Government of the USSR and the Government of the Chinese People's Republic on Cooperation in the Sphere of Fish Industry of 4 October 1988.

The Mixed Commission may, if necessary and at the behest of both Parties, make revisions to the Rules.

Article 9

This agreement shall take effect the day it is signed and will be effective for five years. It will be extended automatically for subsequent five-year periods, unless either Party notifies the other Party in writing six months prior to the expiration of the corresponding five-year period of its intention to terminate it.

Done in Beijing on 27 May 1994 in two copies, each in Chinese and Russian, each text being equally valid, what is more.

[Signed] For the Government of the Russian Federation, V. Korelskiy

For the Government of the PRC, Zhang Yangxi

Environmental Cooperation Agreement

944F1404C Moscow *DIPLOMATICHESKIY VESTNIK* in Russian No 11-12, Jun 94 [signed to press 27 Jun 94] pp 9-11

["Agreement Between the Government of the Russian Federation and the Government of the PRC on Cooperation in the Sphere of Environmental Protection"]

[Text] The Government of the Russian Federation and the Government of the PRC, hereinafter called the Parties;

recognizing that the protection and improvement of the environment are of exceptional importance for the vital interests of the present and future generations of the peoples of the two countries,

confident that the cooperation of the two countries in the sphere of environmental protection is mutually beneficial and will strengthen in the future trust and friendship between the peoples of the two countries,

taking fully into consideration the natural geographical conditions of the two states and their laws, customs, and rules,

fully resolved to aspire to the use of natural resources over a prolonged period of time, ensuring here favorable conditions for environmental protection,

taking account of the Joint Declaration on the Principles of Mutual Relations Between the Russian Federation and the PRC of 18 December 1992 and expressing hope

for a further increase in contacts and cooperation between the two countries in the sphere of environmental protection, and

considering the corresponding documents of the UN Conference on the Environment and Development in Rio de Janeiro in June 1992,

have agreed as hereunder:

Article 1

The Parties will contribute to the development of cooperation in the sphere of environmental protection on the basis of equality and mutual advantage.

Article 2

The Parties will develop cooperation in the following areas connected with environmental protection:

1. The prevention of and struggle against atmospheric pollution and acid rain.
2. The comprehensive use of water resources and the protection of waters, including transborder water courses.
3. The transportation, utilization, and treatment of hazardous waste.
4. Equipment and technology of ecologically clean production.
5. Protection of the marine environment, particularly in the Northwest Pacific.
6. Monitoring, evaluating, and forecasting the state of the environment.
7. Protection of the natural environment and also defense of the diversity of the varieties of the animal and plant world, including the creation and assured functioning of joint protected zones in border areas.
8. Protection of the environment in cities and industrial areas.
9. Propaganda and education in the field of environmental protection.
10. Evaluation of the impact on the environment.
11. Legislation and prescriptive documents, policy, and, primarily, the corresponding economic course in the sphere of environmental protection and the use of natural resources.
12. Other spheres with a bearing on the protection and improvement of the environment in respect to which the accord of both Parties is reached.

Article 3

Cooperation within the framework of this agreement shall be exercised in the following forms:

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1. An exchange of information and materials pertaining to research, technology, production processes, and policy and also legislation, rules, and other matters related to environmental protection.
2. An exchange of scientists and technical and other specialists.
3. Joint symposia, seminars, and other measures on matters of environmental protection with the participation of scientists and technical and other specialists.
4. Plans of cooperation, including joint research, agreed by the Parties.
5. Other forms of cooperation agreed by the Parties.

Article 4

Given the corresponding conditions, the Parties will encourage cooperation in the sphere of environmental protection between local authorities and various public organizations and departments. But neither Party shall be responsible in respect to the liabilities of the above-mentioned cooperating organizations.

Article 5

This agreement shall be realized within the framework of the legislation of each cooperating state within the limits of the financial assets and other resources that they may use.

Article 6

The Parties or the departments realizing cooperation projects that are approved by the Parties may conclude agreements for the implementation of specific cooperation projects in accordance with the provisions of this agreement.

Article 7

The official authorities of both Parties responsible for organizational and coordination work in realization of this agreement are:

from the Russian side—the Ministry of Environmental Protection and Natural Resources of the Russian Federation;

from the Chinese side—the State Administration of the PRC for environmental protection.

Article 8

Nothing in this agreement shall be detrimental to other agreements concluded by the Parties.

Article 9

For the implementation of this agreement, the supervision and evaluation of the progress of its realization, and the elaboration of plans of cooperation for specific timeframes and also for the presentation, if necessary, of

proposals concerning specific methods of strengthening the cooperation of the Parties within the framework of this agreement the Parties have agreed to create a Mixed Russo-Chinese Joint Working Group for Environmental Protection. Each Party shall within three months following the signing of this agreement appoint one of two cochairmen of the working group. The Mixed Working Group shall, as a rule, hold one session a year in turn in the Russian Federation and the PRC.

Article 10

This agreement may be revised in accordance with the mutual consent of the Parties.

Article 11

This agreement will take effect as of the date it is signed and has been concluded for five years. It will be extended automatically for subsequent five-year periods, unless either Party state in writing no later than six months prior to the expiration of the corresponding five-year term its desire to terminate it.

Done in Beijing on 27 May 1994 in two copies, each in Russian and Chinese, both texts being equally valid, what is more.

[Signed] for the Government of the Russian Federation,
V. Danilov-Danilyan

For the Government of the PRC. Xie Zhehua

U.S. Scientists Joining in Nuclear Contamination Studies

MM2009103994 Moscow KRSNAYA ZVEZDA
in Russian 17 Sep 94 p 3

[Report by ITAR-TASS correspondent Yevgeniy Tkachenko: "Nuclear Scientists Pool Efforts"]

[Text] Chelyabinsk—What was recently top-secret work to study the effect of radiation on the environment has become international: Specialists from the United States are joining in contacts between Russian scientists and their Japanese and German counterparts dating back almost three years. According to Aleksandr Akleyev, director of the Urals Scientific and Practical Center for Radiation Medicine, this cooperation aims to minimize the consequences of radioactive contamination on people's health and the environment

The bulk of the work falls on the Urals because this region has experienced the full gamut of radiation—from laboratory-controlled [tekhnogennyy] to accidental (following the explosion of a canister at the "Mayak" Combine in 1957). Results from cooperation with Japan's and Germany's radiologists are already to hand. Samples of soil, plants, water, and foodstuffs have been studied.

Scientists Warn Against 'Maritime Chernobyl' Near Norway*AU1909141394 Hamburg DER SPIEGEL in German 19 Sep 94 p 152*

[Unattributed report: "Nuclear Time Bomb"]

[Text] Russian scientists are warning against a "maritime Chernobyl": The Soviet nuclear submarine "Komsomolets" (42 casualties), which sank off the north Norwegian coast in April 1989 after a fire, has become a radioactive time bomb that could soon explode. Several thousands of square kilometers of the Greenland Sea and the Barents Sea would be contaminated and rich fishing grounds would be endangered for a long time. According to the opinions of Russian and Norwegian experts, the two nuclear torpedoes on board will be corroded by sea water by summer next year at the latest. Then 6 kg of plutonium might poison the water. In the opinion of critical scientists, Moscow's official explanation that the wreck was thoroughly secured during the latest expedition to the site of the accident is mere propaganda. A torpedo tube was sealed with rubber and titan, but in the hull there are still cracks that are 40 cm wide and 2 meters long. The missiles, as well as the torpedoes with normal explosives and nuclear charges are already bathed in sea water. The source of danger could only be eliminated if the wreck, which lies at a depth of 1,600 meters, is lifted. But the Russian authorities favor an extremely precarious makeshift solution: In 1995 the nose of the submarine with the nuclear torpedoes is to be separated from the wreck and salvaged, while the rest of the ship with the nuclear reactor is to stay on the seabed.

Policy on Disposing of Nuclear Ships 'Strange'*MM1509090194 Moscow KRASNAYA ZVEZDA in Russian 14 Sep 94 p 1*

[Article by Vladimir Maryukha: "Obsolete Nuclear Vessels Leave Us No Choice—Either We Bury Them or They Will Bury Us"]

[Text] A great power's works are truly wondrous when, in plain sight of all, the boil of global catastrophe is swelling yet its leaders plan not to operate but to prepare to eliminate the consequences of the "ulcer." What are we talking about? About the recycling of decommissioned naval vessels with nuclear power plants. There are already hundreds of them, and they will be joined by at least another 150 by the year 2000.

Japan is sounding the alarm, claiming that the Russians are contaminating the oceans with liquid radioactive waste. The whole world is alarmed about whether a slice of the nuclear pie "baked" during the years of East-West confrontation will be stolen in Russia and produce a major scandal. And we are alarmed by everything. And only the Russian Navy is for some reason dragging around its neck the burden of having to bury obsolete nuclear submarine reactors.

Judging by the adopted government decisions and decrees (papers on the subject emerge at least once a year) the recycling of nuclear submarines could hardly be going any better. But we need only touch on the question of money and the funding of elaborated and ratified state programs for the obvious truth to emerge—the state can be said to have given up on this problem. And here is the proof.

According to Vice Admiral Viktor Topilin, chief of the Navy's Main Technical Directorate, breaking up a single nuclear vessel costs more than 5 billion rubles [R]. This work is funded not by the state budget—the funds are being found by cutting expenditure on maintaining the combat readiness of the Navy's ships. For its part, the Navy's budget has already been cut to the bone, and the crumbs that have been found will not solve the problem. Given the number of decommissioned nuclear submarines, we will have to think not so much about breaking them up as about maintaining their radiation safety. As a result, the already sluggish pace of recycling is being held up still further.

The leadership of the Ministry for Affairs of Civil Defense, Emergency Situations, and Elimination of Natural Disasters has offered to help break this vicious circle—they are very well aware of what the elimination of the consequences of an accident on a decommissioned nuclear vessel could lead to. One way or another, the "emergency" ministry is prepared to "lend" the Navy R10 billion. But but the Finance Ministry dug its heels in—the government has a separate budget line-item for recycling, it said. And the financiers did not take account of the fact that the Navy will not receive any money under this item at least until the year's end—this is not the same item under which the vast Russian apparatus of civil servants is being paid every month day after day.

It turns out that the government is against redistributing budget funds but, at the same time, it does not intend to release the previously ratified sums for the recycling of nuclear submarines. If two or three decommissioned nuclear vessels were to sink (God preserve us), then the money would be found—if only the same old R10 billion, but it would be being used to eliminate the consequences of an accident that could have been avoided. Clearly, this strange approach, to put it mildly, is also halting Western aid to help Russia solve this problem. The United States, for instance, is ready to provide an \$80-million loan, but only by bypassing government structures—through commercial organizations which will subsequently repay their debts in the form of metal from the decommissioned ships. To this end it is now important to stop selling this metal at knockdown prices—something which has literally left the world ferrous metals market in a state of shock. But scrap—the only unexported asset we have left—continues to be moved out of Russia without any controls. And resourceful businessmen are getting the "green light" for this in the same corridors of power which are "failing to notice" the threat of a radiation accident. The

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government has not heeded the complaints from the Pacific Fleet, even though there are two tankers full of liquid radioactive waste near to the entire Maritime Kray region. As KRASNAYA ZVEZDA has already reported, the naval forces have gotten by—80 tonnes of waste have been processed by an experimental installation brought to the Far East by Hero of the Soviet Union Captain First Class V. Bulygin and company. The same Bulygin who previously saved Lake Ladoga from radioactive contamination. But liquid radioactive waste is only half the story. We need to recycle solid waste formed during the processing of liquid radioactive waste, to "bury" reactors, and to remove decommissioned nuclear submarine reactor cores (this work has been carried out on just 42 nuclear vessels). Just one special train which transports reactor cores from Paldiski to the classified city of Chelyabinsk will cost the Navy R2 billion. After all, forgive me, but it was not the Navy that decided to dismantle the unique nuclear submarine training center in Estonia.

Basically, if Russia's overall problems are to be solved, it will not be by the military nor at their expense. Admittedly, given our poverty, we can agree that state programs within the global security framework will be resolved by sailors, missile troops, and other military specialists on an equal footing with the state. But the civilized world has already long since worked out the following system—the Navy, for instance, receives a ship from industry, uses it to protect state interests for its service life, and then returns it to industry.

Moscow Hosts International Environment Forum

MM1509121394 Moscow SELSKAYA ZHIZN
in Russian 13 Sep 94 p 5

["Scientific Correspondent's Notes" by Leonid Kruglov: "One Land for Everyone. On the Results of the Ninth International General Assembly of 'Globe International' Staged in Moscow"]

[Text] We have begun to forget that time of boundless glasnost when we were up till the crack of dawn keeping vigil by the television set as we took in the ardent debates at the USSR Supreme Soviet sessions. The present sessions involving Duma members have by their own decision turned into a "powwow" behind closed doors. Incidentally, what is there to hide? Without this everything is clear. However, we have even begun to forget the faces of the most active deputies, including those who, having successfully passed through the "filter" of the new elections, stepped beneath the arches of the present Russian veche [council].

It was all the more interesting to see for oneself in action those people's representatives from the State Duma who voluntarily burdened themselves with the unmanageable task of caring for the country's environment, that is, for the nation's health.

The Moscow Assembly of "Globe International"—the global organization of parliamentarians favoring a balanced environment—examined the most serious ecological problems facing the one-eighth of the globe occupied by Russia, problems which, unfortunately, are in my view insoluble in the current circumstances. Actually, no, it still occupies one-sixth as there is one sky above all of us and one land for everybody, and some rivers flow through the territories of Russia, Ukraine, Belorussia [Belarus], and the Baltic states. So you cannot divide up the biosphere, however much you want to. You are not dealing with political sovereignty or the national economy which has immediately gone lame in both legs due to its unexpected independence. It is for this reason that observers from the former union republics were also present at the forum.

It is gratifying that the first international meeting of parliamentarians in Moscow was devoted specifically to environmental protection. We have been put in a corner, as they say: There is no more complex problem facing people today than their biological survival on Earth. Everything else, as they say, comes after.

The current president of "Globe International" and Japanese representative, Mr. Takashi Kosugi, sees its activities in precisely this manner, from such an angle. EC parliamentarians and U.S. congressmen formed this organization in 1989. They were joined by Japan soon after, and by Russia in 1992.

Professor N.N. Vorontsov, chairman of the Russian Federation State Duma Subcommittee for Science, has been elected vice president of "Globe International" and president of "Globe Russia." His report at the Moscow assembly was devoted to a theme which, it would seem, is far removed from the pressing tasks facing our country today—the preservation of biodiversity. Some people will smile and say—does it really make any difference if a species of some or other animal or plant flourishes or disappears altogether from the face of the earth? But such a view is superficial. Man has managed to adapt himself to life in an extreme ecological situation of pollution of the soil, water, and air. To put it more simply, man's range of means of survival is much greater than that of any other type of living being, which die when deprived of certain living conditions. Consequently, biodiversity is a guarantee of people's survival, a precise indicator of the environment's state. According to approximate estimates, the former USSR's territory accounts for 10-12 percent of the world's biodiversity. But it is necessary to take into consideration only 6 million of the species of plants and animals in existence on the planet are known to science. This is a smaller number than those which have not yet been described by scientists. At the same time many species are threatened with extinction due to man. Each of them is unique, and nature is incapable of compensating for these lost mutual relations which have developed during the evolutionary process.

In the opinion of N.N. Vorontsov, to preserve biodiversity on the planet it is essential to radically change society's attitude to this problem. Man does not have the right to chop off the branch he is sitting on. It is time we increased appropriations for studying the diversity of species and expanding international expeditions collecting species for the planet's gene bank. It was just this sort of journey around the world which the great Vavilov would undertake.

Large herbaria and zoos, in which the most valuable of natural collections have been put together, are just as much a national asset as the world's major art galleries and historical museums. The organization of a network of reserves and zoos, and the formation of a national ecological service and an international biodiversity data base are not the whim of men of science but a vital necessity in the preservation of the planet's gene pool.

The most serious problems of human population were also discussed at the Moscow session. Corresponding member of the Russian Academy of Sciences A.V. Yablokov, chairman of the Russian Security Council Interdepartmental Commission on Environmental Safety, made a report to the assembly on the negative effect of an unfavorable environment on Russians' health. About 16 percent of Russia's territory is now situated in an ecological disaster zone. Three-fourths of the country's reservoirs are not fit for drinking. Children are suffering particularly. The high infant mortality rate in a number of regions is directly linked to the harmful effect of the environment on the health of pregnant women and infants in arms.

Russia is a multinational state, and population problems in our country cannot be examined at all without taking into consideration each people's language, culture, way of life, and customs. It is only in cities with populations of many millions, where communing with nature comes down to whether or not to take an umbrella, that people's ethnic features do not in principle play a role. But the peasant is absolutely dependent on nature. Every people, which has been shaped by the influence of the environment, acquires its own stable basis of existence, formed over the centuries if not millennia. It is essential to take these factors into consideration.

Yevdokia Aleksandrovna Gayer, Russian Federation Council deputy and deputy chairman of the Committee for Affairs of the North and Small Peoples, stated in her report that unfortunately, despite the large-scale opening up of Russia's North and Far East, the indigenous peoples' interests were not taken into consideration for decades. The population was regarded from a purely economic viewpoint as a labor resource, as a means of fulfilling the next five-year plan. Some 26 small Northern peoples live in Russia. They make up an infinitesimal proportion of the country's overall population. They number a little more than 150,000 people. They were not borne in mind when it was first and foremost the interests of industry which were made the cornerstone of the program to open up the North.

The ancient hunting grounds were mercilessly destroyed and the indigenous people's children were sent off to boarding schools where they forgot their native language and customs. The way of life of the reindeer-breeders, hunters, and fishermen has also changed. Life in standardized settlements instead of the ancient nomadic way of life has led to skills which were developed by their forebears being consigned to oblivion. The taiga and tundra have ceased to be their home.

"The 1989 International Labor Organization Convention on Indigenous Peoples and Peoples Leading a Tribal Way of life in Independent Countries points directly to the necessity of ridding earlier documents of reasons for assimilating small peoples," Yevdokia Aleksandrovna stated. "Indigenous peoples have been given the right to preserve and develop their own way of life. These peoples are becoming masters in their own lands and are being provided with equal rights in internal state relations. Governments bear responsibility for their existence."

Nevertheless, changes for the better have been noted. For example, in the Khanti-Mansiysk Autonomous Okrug, the "status of priority user of natural resources of the indigenous population" and "Statutes on the Status of Ancestral Objects of Economic Significance" have been approved. It was not possible to tarry with this as, after all, in the time that the oil-bearing strata were being developed, 6 million hectares of reindeer pastures, or 12 percent of their total area, were removed from commercial usage in the tundra.

The destruction of an ethnic culture for the use of natural resources inevitably leads to a breakdown of the system of interaction between man and the environment which has developed over the centuries and to the disintegration of peoples, without whose variety the human personality is deprived of individuality and society turns into a faceless mass. It is for the Russian parliament to decide along which path the country will go—will we move toward standardization of the way of life or will laws be elaborated on the rights of peoples, both large and small, to their own way of life? At the same time you should not forget that it is actually nature, the environment you live in which shapes this or that people.

The world's parliamentarians see their main task as being to link together the problems of population, ecology, and social development. There are no main and subsidiary elements in the resolution of this problem. The participants in the Moscow assembly talked of preliminary measures to clear up interethnic conflicts, aid for refugees and immigrants, the protection of mothers and babies, and the development of alternative energy sources from wind and sun capable of halting the global climatic change caused by the combustion of oil and gas and the discharge of carbon dioxide into the atmosphere.

Doctor of Economic Sciences M.Ya. Lemeshev, chairman of the Russian Federation State Duma Ecology

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Committee, called on the world community to stop using nuclear power, which is holding the whole of mankind hostage, as "safe" reactors simply do not exist however they are constructed. They are all potential Chernobyls.

V.I. Danilov-Danilyan, Russian minister of the environment and natural resources, gave a report on protecting Russia's environment in the light of global ecology. The natural world in our country, occupying a significant part of the Eurasian landmass, is in many respects a factor determining climate and weather on the planet as a whole. The Siberian taiga releases no less oxygen into the atmosphere than the Pacific Ocean and tropical forests. The state of Russia's environment is in many respects reflected in the state of the planet's biosphere.

Unfortunately, due to the economic difficulties facing our country, there are forces in the world which view Russia's vast open spaces as a global dump where highly toxic and nuclear waste can be brought with impunity and on the cheap. It is within the powers of Russia's parliamentarians to prevent these crimes. Our Duma has matters of somewhat greater importance than party squabbles and satisfying political ambitions. It is essential to resolve the most acute ecological problems facing the country as quickly as possible. There is one land for everybody and it is simply dangerous to forget this.

International Symposium on Lake Baykal Environment Opens

MM1509134594 Moscow ROSSIYSKAYA GAZETA
in Russian 14 Sep 94 First Edition p 2

[Unattributed report: "NATO and Baykal"]

[Text] Luis Vega de Cunha, director of NATO scientific programs on the environment and one of the initiators of the international symposium being held in Buryatia, considers it the start of participation by scientists from various countries in conserving the Baykal region's natural environment. The theme of the symposium is "The Baykal Region as a World Model Territory of Stable Development." Representatives from Germany, Britain, Mongolia, Kazakhstan, Kirghizia [Kyrgyzstan], the Czech Republic, Japan, and Russia are participating in it.

Baykal is undergoing ecological degradation, Luis Vega de Cunha said. Nevertheless, he does not consider the situation in the region of the lake to be catastrophic. It can be regarded as a place where preconditions exist for realizing the concept of a territory's stable development on the basis of efficient utilization of natural resources.

Expert Says Oil Deal Could Threaten Caspian Ecology

LD2109212894 Moscow ITAR-TASS in English
2047 GMT 21 Sep 94

[By ITAR-TASS analyst Mikhail Krushinskiy]

[Text] Moscow September 22 TASS—The ecological system of the Caspian Sea is to be treated with an extreme care. The Caspian coast is overloaded with industrial objects without an adequate ecological protection, therefore any additional load upon the region's environment should be subject to a thorough expert examination. With this in view, the Russian Foreign Ministry had all grounds to express concern over the creation in the Azeri capital of an international consortium to develop oil fields off the Caspian coast.

This is the opinion of well-known Russian economist Viktor Belkin who has been long engaged in research as to what can be the maximal admissible load upon the environment.

A few years ago, Belkin visited the Caspian region as a member of a governmental delegation on natural resources. As a result of this trip, the researcher came to the conclusion that the Caspian Sea is a very vulnerable natural object, actually isolated from high seas. Even a small oil ejection may appear disastrous for valuable fish species and other marine resources.

The contract between Azerbaijan's state oil company and a group of Western firms on a joint development of oil fields on the Caspian Sea shelf was denounced by the spokesman for the Russian Foreign Minister, Grigoriy Karasin. He said any unilateral actions related to the Caspian resources contradict international law and pose a danger for the region's ecological system. Some observers consider this just a manifestation of political jealousy. Probably, the final conclusion can be only made by international experts.

Physicist Proposes Nuclear Explosions for Ecological Benefit

94W'N0400A Moscow ROSSIYSKAYA GAZETA
in Russian 7 Sep 94 p 5

[Special issue of the "Nekos" study from the international symposium "Nuclear Urals: Sciences, Industry, Life" prepared by Vladimir Gubarev: "The Bomb in the Role of the Ecologist"]

[Text] A charged particle leaves a trail in the chamber. Then you see on the photographic plate how it broke through the indifference of the blackness, showing its path through bright spots. The energy of one particle excites all those around it and this is its value and uniqueness.

Albert Vasilyev reminds us of that powerful cosmic particle that penetrates the grayness of our everyday lives, coloring them. And although this may not please everyone, fortunately there are such people in the world and it is a great joy to know them and to meet them.

Albert Vasilyev, a theoretician from the super-secret nuclear center Chelyabinsk-70, was one of those who headed the program for so-called industrial nuclear explosions that was carried out in our country over many

years. We got to know him in one of the first experiments. That was in putting out a big oil gusher in Pamuk in Central Asia. It was possible to suppress this oil geyser only with the help of an underground nuclear blast and this was at the end of the 1960's....

And at the beginning of that decade, "physicists" and "lyricists" in Moscow organized discussions and poetry evenings and established creative cafes. There was a "Khrushchev"-thaw and for this reason the future seemed extraordinary and joyful, happy and different from that of our fathers and grandfathers. The young people of Moscow were bubbling over and at the center of this flow was the physics student Albert Vasilyev. He invited poets, bards, and writers to discussions. He was trying to prove that the conflict between "physicists" and "lyricists" was imaginary. And he did prove this when he married a journalist. But the burst of emotions gradually died away and therefore the physicist had to deal with physics. At Chelyabinsk-70, they offered him an apartment right away but the main thing was that they offered his wife work with the local radio station and this immediately determined his choice: Albert left for the Urals. By the way, he hoped that he would not have to stay there long, for he had very close ties with the Kurchatovskiy Institute and even worked there for a few years. But gradually the "basic subject" got hold of the theoretician more and more and the work was so interesting and important that he simply stayed in the Urals for good.

There is an expression that goes like this: "This idea is insufficiently crazy to become a reality." The expression is attributed to many but physicists assert that the first one to use it was Niels Bohr. Others repeated it in different versions, because this winged phrase very aptly expresses the essence of the development of physics in the 20th century. "Crazy ideas" truly have not only overturned the notion of the micro- and macrocosm but also have fundamentally changed the face of civilization, giving to humanity astronautics and electronics and molecular biology and the nuclear industry—everything that surrounds us today.

Thus, the atomic bomb in the role of the ecologist. Albert Vasilyev said:

"From the very beginning of the work to create nuclear weapons, our best scientists tried to find especially peaceful directions for their research. And when I came to Chelyabinsk-70 still quite young and green, the work on peaceful explosions was underway there with great enthusiasm. I will dwell on one area, that of camouflet explosions. What is the economy and efficiency of such underground work?"

An enormous amount of energy is concentrated in a small sphere. It turns out that the cost of the nuclear explosion per unit of volume is much less than for conventional explosives. For this purpose, it is necessary to construct huge tunnels and large structures. We can utilize conventional exploratory shafts. What were we

able to do? The first thing was to extinguish large uncontrollable oil and gas gushers. There are not only losses of large quantities of oil and gas but there is also an intensive contamination of the environment. Essentially a "dead zone" forms around a gusher and all living things perish. I think that no one has any doubts that the use of underground nuclear blasts is the only inexpensive and effective means of eliminating disasters of this kind. The second thing that we did was to establish underground depositories. We made 15 such reservoirs under Astrakhan alone and they also appeared in other regions of the country. Obviously everyone has seen the capacities for the storage of gas condensate. They are gigantic reservoirs. They themselves are dangerous but worse than that is the fact that gas is constantly being "released" into the atmosphere and the air is being polluted. The underground capacities that we created at the depth of about 1 km in salt strata lack all of these shortcomings.

The cavities hold a pressure of about 100 to 150 atmospheres and they work dependably. Not only is a very valuable fuel—gas concentrate—preserved but also there is no contamination of the environment. No special proof of this is required: it is sufficient to go where we worked and to visit conventional formations. You can tell just by the smell where and how well you can breathe....

And finally, the control of enterprise wastes. It is enough, for example, to visit Bashkiriya, where you will see gigantic "white seas"—storage reservoirs for extremely harmful substances. Naturally wastes do not stay in these reservoirs. They seep into the rivers (the Belaya, Kama, and Volga are already polluted) and wind erosion carries this filth many hundreds of kilometers. In 1973, we created a cavity deep underground next to the combine in Sterlitamak, where 6,000 to 8,000 cubic meters of wastes are pumped every day. Such a large combine needs just three or four shafts and the "white seas" will disappear. We proposed that Bashkiriya be completely freed of this "filth" but the fear of the nuclear bomb prevailed and for this reason the work was stopped. Now the inhabitants of the republic have to pay for the victory of the ecologists with their health....

By the way, miners appeal to us all the time to save them. No, this is no exaggeration: it is true that there have been no accidents in the shafts where we worked. The fact is that with the help of mini-explosions (nuclear, of course) we "shook up" the strata and the methane—the traditional enemy of miners—came out. It became less dangerous to work in the mines, so that many lives of miners were saved thanks to the implementation of the program to utilize nuclear blasts for peaceful purposes. And the people must know this as well! For today we are continually getting reports from the Kuznetsk and Donets coal basins on the loss of people because of the penetration of methane....

"I am convinced," Albert Vasilyev said in conclusion, "that after a certain time underground nuclear blasts for

peaceful purposes will be carried out not only because their use in industry is very efficient and economical but—the main reason—precisely for ecological requirements as long as it is impossible, in my view, to preserve the environment without them."

A "crazy idea?" It seems so only at first but one needs to stop and think: after all, there is a "rational kernel" in the words of Albert Vasilyev. Is it possible that this is the conversion of the nuclear complex that is being talked about so much?

But what about radioactivity?

I asked Academician Yevgeniy Avrorik, science manager of Chelyabinsk-70:

"Can you guarantee the complete safety of the work to utilize underground nuclear blasts for the needs of industry?"

"Right now I can firmly answer that with a yes," said the academician. "This program has gone on for many years and naturally we had failures as well. Today, however, the technology of this work has been polished and it is quite perfect. This is so for the creation of special 'items' and for the study of all the consequences of the explosions. We were able to resolve an enormous number of extremely complex problems, in particular those having to do with the localization of radioactivity. I am convinced that there will be no surprises. The psychological state of the society is another matter. After Chernobyl and the working up of emotions about the nuclear complex, unfortunately, a certain stereotype was established that is very difficult to overcome. But our people must know that Russia possesses a unique and up-to-date technology for the utilization of nuclear explosions in industry. In this area, we are ahead of scientists and specialists of the United States, which they themselves recognize, by the way."

As you know, some ideas in science are way ahead of their time. It is possible that this is so with respect to the ecological function of the atomic bomb. As we live we will see.

Ecology Protesters Removed From Presidential Building

LD2309110394 Moscow *ITAR-TASS World Service*
in Russian 1028 GMT 23 Sep 94

[By *ITAR-TASS* correspondent Mikhail Karlov]

[Excerpts] Moscow, 23 September (*ITAR-TASS*)—The entrance to Staraya Ploshchad where the Russian Federation president's offices are located was blocked for almost 90 minutes by activists from the "Guardians of the Rainbow" radical ecological movement. They were petitioning the heads of the committee for conventional problems relating to chemical and biological weapons to demand that the destruction of chemical weapons in the country be halted.

Around 30 people (aged 18-25) from Moscow and Moscow Oblast, Nizhny Novgorod, Kaliningrad, and Ukraine took part in the protest. [passage omitted]

Security officers from the [presidential office] building called in the police who arrested the protestors. They put up no resistance and were taken from the square by car. The officer leading the "operation" refused to tell the press where they were taken.

Sverdlovsk Institutes Polluter's Liability Law

MM2309093694 Moscow *TRUD* in Russian 20 Sep 94
p 5

[Report by Anatoliy Dzhapakov: "If You Poison People, You Pay"]

[Text] Yekaterinburg—The government of Sverdlovsk Oblast has for the first time in Russia adopted an official document laying down the procedure for and amount of compensation for damage done to citizens' health by enterprises whose activity is hazardous to the environment.

Henceforth people living next to plants that poison the soil, water, and air may demand in law that specific sums of money be paid for the unfavorable effect that the activity of these enterprises has on their organism. Specialists from several institutes have been working on this document for over a year and trade unions have also been involved in this work. The amount of the damages incorporates over 20 indicators. Among them the cost of treatment, loss of earnings, and even the cost of moving to and settling in a new place of residence. Previously such cases were invariably defeated during arbitration owing to the absence of this statute. Now with the emergence of a normative base there is a chance of obtaining compensation for damage to health caused by enterprises that pollute the environment.

ARMENIA

Armenia's Green Movement Holds Congress

94WN0401A Yerevan *RESPUBLIKA ARMENIYA*
in Russian 9 Sep 94 p 1

[Article: "In the Center of Attention—Problems of Ecology"]

[Text] Another congress of Armenia's Green Movement began its work yesterday morning. The program of the congress consists of a report on work done, a large number of presentations, discussion and summarization of the results, and organizational matters—amending the union's by-laws and program and electing its leadership.

Representatives of all regions of Armenia, public officials and scientists took part in the congress. Their presentations, which echoed yesterday in the half-empty auditorium of the Armenian Academy of Sciences, concerned both the republic's global ecological problems

and particular problems, down to and including street vendors selling poor quality products. Influencing the parliament's legislative activity is the movement main form of activity. This means, in particular, drafting documents directed at optimizing the ecological situation in the state and submitting them to the Supreme Soviet.

KAZAKHSTAN

Radiation Pollution Studies Uncoordinated

94WN0405A *Almaty PANORAMA in Russian* No 35,
10 Sep 94 p 5

[Interview with Viktor Slavgorodskiy, chief of the administration of radioecology of the Republic of Kazakhstan Ministry of Ecology and Bioresources, by Andrey Solovyev; place and date not given: "Fourteen Organizations in the Republic Are Working on Radioecological Questions"]

[Text]

Solovyev: What sources besides the Semipalatinsk nuclear test range affect nuclear pollution of the territory of Kazakhstan today?

Slavgorodskiy: Several factors determine the radiation situation.

In addition to the Semipalatinsk test range there are the traces of the Chelyabinsk and Chernobyl accidents, the functioning of the Chinese Lob Nor test range, the nuclear explosions conducted in the Soviet days for the resolution of various national economic tasks, technogenic activity, global fallout, and natural radiation.

The contribution of these factors in the formation of the general picture of nuclear pollution of the territory of Kazakhstan is diverse. But the result is this: On the whole, the enumerated sources of nuclear pollution have caused the accumulation of a colossal volume of radioactive wastes. According to activity, it amounts to 13.2 million curies, according to mass—232.9 million tonnes. At the same time, the wastes of nuclear explosions produce 12.8824 million curies and 12.3 million tonnes, and the wastes of the mining and processing industry, 252,900 curies and 220.6 million tonnes.

The problem of burying these gigantic volumes of wastes is very difficult in itself. But it is further aggravated by the fact that a state system for the burial (storage) of radioactive wastes is lacking in Kazakhstan.

Solovyev: Despite the fact that a number of state organizations are working on problems of radioactivity in the republic?

Slavgorodskiy: Yes, at the level of organs of state administration, 14 different organizations, from the Ministry of Ecology and Bioresources to the MVD [Ministry of

Internal Affairs], are working on problems of radioecology. There are also a number of institutions and enterprises that are in one way or another working on this problem. But to date there is not one effective coordinating organ in Kazakhstan. As a result, duplication of work occurs and an unnecessary loss of resources. At the present time two government-approved scientific research programs—of the Ministry of Ecology and of the National Nuclear Center—are functioning.

In addition, it is also appropriate to classify changes to the Law On Social Protection of Citizens Who Suffered as a Consequence of Nuclear Tests at the Semipalatinsk Test Range as top-priority legislative work. The fact is that this law makes it possible to include the entire territory of Kazakhstan in the ecological disaster zone according to a radiative criterion. We have already prepared a draft of changes and submitted it to the Supreme Council.

Solovyev: Radiation ecology services were recently formed under oblast administrations of ecology and bioresources. Can you sum up the results of their activity?

Slavgorodskiy: The task of these services includes studying the radiation situation on the territory of the oblast and implementing supra-departmental state ecological control over facilities that constitute a danger of radiation pollution of the environment. In this category are uranium mining and processing enterprises, enterprises of the nuclear industry and power engineering, the production of oil and gas, and the construction industry. Nine hundred such facilities have been registered and put on the books. As a result of inspections, significant violations of the norms and rules of radioactive safety and rules for radioactive waste storage have been identified. Cases of loss of radioactive isotopes have been registered, and also use in the national economy of material equipment with increased radionuclide content. The absence of regulatory normative-methodical documents constitutes a great difficulty in the work of radioecologist inspectors.

Solovyev: What is the situation like with the financing of work with respect to the government decree?

Slavgorodskiy: Financing is being conducted very badly. The source of financing is the state budget, and resources from it are systematically being allocated in volumes that are reduced in comparison with the volumes that were envisioned in the resolution. In 1993, instead of the planned R580 million we received R518 million, and this year overall—only 43 percent of the requirement. It is necessary to open a new theme in the budget—financing work associated with the burial and utilization of radioactive wastes. If the situation with financing does not change fundamentally, it can be said clearly that the decree will not be fulfilled.

LATVIA

'Chronic' Pipeline Breaches Threaten Ecological 'Tragedy'

WS1909091494 Riga DIENA in Latvian 9 Sep 94
pp 1, 6

[Report by Janis Tropis: "Thefts of Fuel From the Oil Pipeline Have Become Chronic"]

[Excerpts] Riga, 7 September—At the beginning of September, in the village of Ugale in Ventspils district, unknown individuals drilled a hole in a 530-mm diameter oil pipeline, which connects Russia with the Ventspils seaport. As DIENA was told by Vasily Pauskins, the operating service engineer in the "LATROSTRANS" joint stock company, it was the fifth attempt to steal fuel from the pipeline during the last week. Over the past two years, there have been fourteen such attempts reported. Pauskins expressed his amazement and indignation over the fact that the police have not been able to discover the guilty parties, even though in his opinion, it was very easy in several cases to guess who the culprits were.

"I am currently unable to estimate the losses we have incurred—the users of the pipeline—but a time may come when it will result in an environmental tragedy. Besides, the examinations of the damages and their repair, as well as our helicopter control flights along the pipeline cost a lot of money. Plus, it now seems that it has become quite an epidemic, especially in the part that crosses the Bauska region," said Pauskins.

As DIENA has already reported, at the end of July in the village of Ugale, thieves who apparently wanted to gain access to the oil pipeline, made a mistake and instead drilled a hole in the main oil pipeline which runs parallel to it. As a result, 50 tonnes of oil leaked out of the 720 mm pipeline, polluting nearby fields. Fortunately, the oil did not seep into the ground water. The soil was removed from the site and is now being treated by microbiological methods. [passage omitted]

Aleksandrs Zaicevs, an engineer with "LATROSTRANS," told DIENA that the attempted thefts may cause a dangerous buildup in the system and result in a rupture of the main oil pipeline. In that case, hundreds or even thousands of tonnes of oil and fuel could be released into the environment. For the time being, "LATROSTRANS" cannot secure control over the entire length of the pipeline.

UKRAINE

Experts Fear Radioactive Beaches, Riverbanks

AU1409135994 Kiev DEMOKRATYCHNA UKRAYINA
in Ukrainian 10 Sep 94 p 3

[Report by UNIAN correspondents Viktor Demenyev and Yuriy Dronzhkevych: "Radioactive Traps on Riverbanks. For the End of the Bathing Season"]

[Text]

Chernobyl Hostages

Water is one of the likely and most dangerous carriers of radionuclides in the 30-kilometer zone of the Chernobyl Atomic Electric Power Plant [AES]. For that reason, during the first days after the accident it was decided that flood waters should be localized and prevented from flowing into the Dnieper.

"In 1986, 131 hydrotechnical facilities were built—dams, protective screens, and embankments," said Eduard Panasevych, director of the "Chernobylvodekspluatatsia" [Chernobyl Water Utilization] enterprise, in an interview with UNIAN correspondents. "At that time, they fulfilled their functions completely, and later many of them were no longer needed. At present, 23 such structures have remained, as well as about 500 boreholes for monitoring subsurface waters. Specialists from the 'Chernobylvodekspluatatsia' keep track of the content of radionuclides in subsurface waters and of the discharge of the overflow waters of small rivers and conduct reconstruction and repair operations."

However, despite the fact that over the eight years which have passed since the accident, nature spared us—there was little snow and the amount of the rainfall was within norms—the year 1994 proved to be a real test. For the liquidators—water specialists—it became "the year of high water." Moreover, there were floods both in spring and in summer. Large areas were inundated. For the Pripjat River, the high water in the Chernobyl zone was particularly dangerous, since it inundated the right-bank fields. However, the left bank withstood the flood—because the dam and a polder pumping station had been built in time.

Despite all these measures, a certain amount of radionuclides did escape from the 30-kilometer zone. They did not present any danger, since they were "diluted" in large amounts of water. Whereas, following the accident, the annual runoff volume along the Pripjat River averaged 1,200 cubic meters per second, this spring it was 1,800.

However, there exists yet another danger of radionuclide spread that specialists have ignored for a long time. It is the accumulation of radioactivity at riverbanks.

As is known, the Chernobyl AES accident occurred on 26 April—at the height of that year's spring flood period. On 29 April, the water level fell by one meter, having left strips and clusters of concentrated radioactive sediments on the riverbanks. How did that happen? It is common knowledge that radioactive elements are heavy metals which are supposed to sink in water and settle at the bottom. The extent of water contamination has always been determined in terms of the amount of radionuclides in bottom sediments. How do specialists explain this phenomenon?

Here is what Mykola Semybratov, senior engineer of the small enterprise "Ramon" ("Radioactive Monitoring") told the UNIAN correspondents:

"During the accident, various combustion products escaped from the reactor—not only of fuel or graphite, but also of possible construction materials: insulators, polymers, and wood.... All of these became mixed in the atmosphere and underwent sorption, the radioactive components became combined, settled on the soil and water, though already not in the form of 'pure' metals, but combined within some carriers. Some of them floated, some took the form of suspension, and some fell onto the bottom. The ratio of bottom deposits to what remained at the water surface was approximately one to three. All of this was, within hours, carried to riverbanks by the current and by the wind. Consequently, the radioactive contamination of riverbanks must be at least as bad as that of river bottoms. However, to this day, no studies of riverbank anomalies have been conducted."

Incidentally, the problem goes beyond the framework of the Chernobyl accident. The contamination of riverbanks—and on a much greater scale—also occurs as a result of waste disposal from industrial enterprises. For example, three years ago, in the area of Mariupol, "black sands" were noticed on sea beaches. They turned out to be radioactive, with the gamma-radiation intensity ranging from tens of microroentgens to several milliroentgens per hour. Measurements of the isotopic composition showed that the "black sands" were thorium-containing radioactive waste materials, which remained after ore extraction and ore enrichment.

A radioactive menace may even now lie in wait for people on the beaches of the Dnieper and other Dnieper Basin rivers. In 1986, in Kiev, maximum doses measuring between 1.5 and 8 milliroentgens per hour were recorded. Therefore the anomalies amounted to between 120 and 800 milliroentgen. Today, on the beaches, something already "sank into the sand." However, nobody has investigated areas of popular recreation where these anomalies may be well preserved.

Unfortunately, in 1986, leading scientists specializing in issues of environmental pollution had no idea of the mechanism of surface self-purification of water reservoirs. This is despite the fact that they had 40 years of

experience in studying the consequences of atomic explosions, believes Mykola Semybratov, and should have immediately forecast the creation of riverbank anomalies, taken the necessary measures, and warned the population. Adults and especially children lay in the sun and played on the beaches and at the banks of water reservoirs. It has been proved that when a person simply walks along a dirt path in a contaminated zone in dry weather, he will inhale a hundred times more radionuclides. Moreover, children do not walk near water reservoirs, but, while playing, dig themselves into the sand. One can only be terrified by the amounts of radioactivity that they have "swallowed!"

Results of studies in Rivne Oblast on a system of Nobile lakes are available: If cattle graze in places higher than the water reservoirs, the milk is clean. Once the cows walk along the riverbank, strontium is detected in the milk. This is a convincing proof that radionuclide "traps" have emerged on the banks of rivers, lakes, and ponds.

How to protect people from the radiation hazard in places of recreation near water bodies?

"It is urgently necessary to intensify work on searching, mapping, and forecasting the behavior of riverbank radiation anomalies," says Mykola Semybratov. "It is also essential to eliminate them, first and foremost, in populated areas and on beaches."

Yes, eight years following the accident, our sensation of danger has been dulled. However, currents, waves, and river vessels are steadily adding "new" radioactivity, raised from river bottoms, to the "old" one which settled on the riverbanks. Thus, the danger has not disappeared. It simply went into hiding.

We can only offer one piece of advice to those who strive to spend time at the beach, near the coolness of the water: Take along a domestic type of dosimeter and check whether the sand in which your children play and on which you lie in the sun is clean. Radioactivity usually comes through in patches, and an absolutely clean place may be found five meters away from the one where it is better not to linger. Even though the doses are small and harmless for the majority of people, one should always remember that God helps those who help themselves.

REGIONAL AFFAIRS

ERS-2 European Satellite To Provide Environmental Data

AU0809113694 Munich FOCUS in German 5 Sep 94
p 156

[Juergen Scriba/Volker Schwenck report: "Four-Eyed Scout"]

[Text] What did we always want to know about the Earth?—It seems as if the developers of the European satellite ERS-2 asked this question and therefore crammed their creation with an extra portion of scientific instruments.

"The dying of the forests, the greenhouse effect, acid rain," the European Space Agency [ESA] says, proudly listing the global questions that ERS should help clarify. For three years its predecessor ERS-1 has supplied data from space. It became above all known for the almost photographically sharp radar pictures that the satellite can also take at nighttime and through dense cloud. As a highlight, ERS-2, which will be launched on an Ariane missile at the end of the year, will carry instruments to measure data on the spreading of the "ozone hole" and environmental pollution—a goldmine for environmental researchers.

"It is almost a miracle that we have managed to make the GOME [Global Ozone Monitoring Experiment] instrument a reality in only four and a half years despite the chronically tight ESA budget," raves John Burrows, who developed the instrument at Bremen University. GOME stands for Global Ozone Monitoring Experiment. In a tricky procedure, it measures the concentration of ozone and other trace gases in the atmosphere from the sunlight reflected by the Earth.

GOME measures four wave ranges of visible and ultraviolet light with great accuracy. One can ascertain the various atmospheric gases from the characteristic attenuation of different wavelengths. For example, in the upper atmosphere ozone screens off ultraviolet radiation, which can cause skin cancer in humans. GOME will clarify whether and how far the thinning out of this vital protective shield—the ominous ozone gap—is progressing.

"With an accuracy of 3 percent in measuring ozone, GOME exceeds all previous experiments," Burrows explains. The U.S. satellite "Nimbus 7," which discovered the Antarctic ozone gap more than 10 years ago, has an error range of about 8 percent, which makes it very difficult to predict long-term trends. In addition, GOME can detect other air pollutants such as nitrogen oxides and sulfur and chlorine compounds that could play a role in ozone reduction.

With ERS satellite data on sea temperatures, wind direction and speeds, climate researchers will gain even more valuable statistics for their computer models—a really "green" satellite.

FINLAND

Company Develops Cleaning System for Liquid Nuclear Waste

LD0909184294 Helsinki Suomen Yleisradio Network
in Finnish 1600 GMT 9 Sep 94

[Text] The Imatran Voima company [IVO] has developed a portable system that renders radioactive liquids harmless. The operation of the cleaning system is based on inorganic insoluble granules that bind radioactive substances to themselves. No one else has been able to manufacture corresponding granules, IVO reports. The cleaning equipment has been tested at the Loviisa nuclear power station, and according to IVO, it has functioned even beyond expectations. The IVO says that the problematic liquid nuclear waste of the military base in Paldiskiy could be cleaned in a couple of months with this system.

GERMANY

Ukrainian Disposal of Nuclear Waste Causing Concern

LD1109114694 Berlin DDP/ADN in German
1118 GMT 11 Sep 94

[Text] Bonn (DPA/ADN)—The Federal Government is in possession of alarming reports about the way nuclear waste is being dealt with in Ukraine. The background service paper 'BONN-INFO,' quoting findings of the Federal Government, reports today that the Kharkov combine, which deals with radioactive waste, received less nuclear waste in the past few months than in previous comparable months. There is concern that firms, in order to cut costs, no longer hand over nuclear waste. It is suspected that firms are storing radioactive material on their own sites, or secretly mixing it in with building materials.

What is more, only two of the six decontamination combines in Ukraine has any spare capacity, the others having been closed down because of overstocking.

Illegal Dumping Said To Be Increasing

94WN0386G Duesseldorf VDI NACHRICHTEN
in German 5 Aug 94 p 4

[Article by "cf" under the rubric "This Week": "Federal Environmental Agency Publishes 1993 Annual Report. Waste Being Disposed of Illegally More and More Often"]

[Text] Emissions of the greenhouse gas carbon dioxide are declining in Germany. Three quarters of all dumps in Germany will be filled by the year 2000. As before, agriculture is one of the biggest water polluters. Environmental crime is rising, while the proportion of crimes solved is falling. This is the main message of the 1992 annual report of the Federal Environmental Agency

(UBA) in Berlin, which UBA President Dr. Heinrich von Lersner and Federal Environment Minister Klaus Topfer made public last week in Bonn.

The unification of the two Germanies has also brought a change for the greenhouse gas carbon dioxide: German CO₂ emissions have been declining since then. The per capita emissions of the western and eastern federal states are by this time likewise high at 11.1 tons and 11.3 tons, respectively, "but by the mid-80s the GDR was the world champion in CO₂," Topfer stressed. However, the UBA report says, Germany's efficiency in the use of energy has not improved in the years that have passed. As before, nearly two thirds of the energy used are lost mostly in the form of waste heat.

Things are getting cramped at German dumps. "The space of approximately 916 million cubic meters available in 1990 will be more than three quarters full by the turn of the century," the report states, "if no new dumps are created or old dumps expanded." But in spite of legislation granting relief for investment, new dumps will hardly be able to be approved in the face of public resistance.

UBA is following with concern the increasing taking of waste underground into mines. Around 1.13 million tons of non-mining waste material were put into mines in Germany in 1992, it says. This "recycling for mine filling" is just hard to differentiate from waste dumping, because elsewhere the same refuse is disposed of in underground dumps licensed under the waste disposal law, in which a higher environmental standard is ensured.

The report again devotes a full section to agriculture. It is still responsible for high pollution. For instance, approximately 55 percent of all nitrogen entry and 40 percent of all phosphorus entry into waters presently originates from agriculture. The pesticide limit of 0.1 µg/l is being exceeded today in 3.2 percent of all studies of ground-water and surface water reported to UBA. Eighty-five percent of all ammonia emissions into the air come from keeping animals. Ammonia is made a sharer of the responsibility for forest damage.

Environmental crimes are on the rise. In 1993, 29,732 cases of crimes against the environment were recorded, i.e., four percent more than in 1992. Of these, 62.5 percent fell under the class of waste disposal threatening the environment. These offences increased by just under seven percent versus 1992. An additional 29.3 percent represent water pollution. On the other hand, the number of crimes solved has been dropping for years: In 1988, 76 percent of environmental offences were still able to be solved, while the figure was 64.2 percent in 1993.

Lersner took advantage of the opportunity to draw attention to UBA's extremely thin provision with funds for research contracts as well as for the subsidizing of investment by German industry in environmentally

friendly technologies. In particular, the money for investment was cut by more than 40 percent in the current year, and a further cut by 24 percent is planned for 1995. This means that only a few new projects will be able to be supported in the coming year. In the past these demonstration projects were quite often the basis for environmental regulations, such as the "Technical Guidelines for Clean Air" and the regulations for large furnaces.

There have been drastic changes at the agency itself. In order to make allowance for the further development of environmental policy thinking, as of September UBA will change its organizational structure oriented around the classic environmental media of water, soil and air, and be divided into five new divisions: environmental planning and strategies; environmental quality and standards; environmentally compatible technology, processes and products; and substance rating and enforcement.

The annual report can be obtained at no charge from: Umweltbundesamt, ZAD, Postfach 330022, 14191 Berlin.

Speed Limits Called Ineffective in Reducing Ozone-Producing Emissions

*94WN0386F Duesseldorf VDI NACHRICHTEN
in German 5 Aug 94 p 3*

[Article by Christa Friedl under the rubric "This Week": "Automobile Industry Association Protests Against Traffic Restrictions in Summer Smog. Braking for Ozone?"]

[Text](VDI-N)—Anxiety concerning ozone is unjustified in most cases. Speed limits reduce ozone pollution only negligibly. The policy measures already introduced are sufficient to reduce vehicle emissions. With these statements the automobile industry association is now making it clear where it stands in the debate concerning the ozone threat.

Traffic restrictions, speed limits, driving bans for vehicles without catalytic converters, the barring of traffic from inner cities - heated issues that every year push the car into the center of the ozone debate. With good reason: According to data from the Federal Environment Ministry in Bonn, traffic is responsible for 70 percent of nitrogen oxide (NO_x) emissions and 50 percent of volatile hydrocarbons. The irritant gas ozone forms from these so-called precursor substances with the aid of strong sunlight, and aldehydes, aerosols and aggressive photo-oxidants like peroxyacetyl nitrate form in addition. This "summer smog" irritates mucous membranes and can lead to headaches, circulatory ailments and watering eyes. Ozone, as a water-insoluble substance, reaches deep into the alveoli and reduces respiratory tidal volume.

All the same, the equation "Less Traffic Saves Us Ozone" is not that simple. The ozone cycle has

numerous murky areas besides. "The mechanisms of the origin of ozone near the ground are complex," emphasized Dr. Norbert Metz, head of the energy and environment department at BMW, at a meeting of the Association of the Automobile Industry (VDA) last week in Frankfurt.

Vehicle emissions are actually only one of numerous factors exerting an influence. For instance, the wind and radiation situation, topography and deposition, atmospheric turbulence and humidity also play a role. Also, there is broad agreement today that part of the ozone near the ground is transported there from higher layers, even from the lower stratosphere at an altitude of 15 km. Prof. Reinhard Zellner, head of the Institute for Physics and Theoretical Chemistry at Essen University, estimated at VDA's meeting that "the amount carried in like this equals around 20 percent of the total amount of ozone that forms." All these facts made VDA Director Prof. Gunter Zimmermann sum it up as follows: "The present state of our knowledge does not justify regulatory measures against the automobile."

On the other hand, Hesse pulled the emergency brake on July 26. The two main conditions for Hesse's speed-limit regulation pertaining to ozone were fulfilled for the first time on this day: Ozone levels of higher than $215 \mu\text{g}/\text{m}^3$ were measured at at least three measuring stations 50 km apart from one another. Second, a stable weak-exchange weather situation stood in the way of removal and dilution of the irritant gas. Under the slogan "Speed Limits Against Summer Smog" the Hessian environment ministry, through a maximum speed of 90 km/h on superhighways and 80 km/h on all other roads, wants to prevent "further increasing of the maximum ozone level of $300 \mu\text{g}/\text{m}^3$ to $400 \mu\text{g}/\text{m}^3$."

No one even at the ministry in Wiesbaden can say whether this will be possible because of the speed limits. Ozone defies simple cause-and-effect relationships. First, it is not emitted directly as other pollutants are, but forms in the atmosphere and also breaks down again through chemical transformation processes. And yet, how much ozone forms and how quickly it forms depend not just on the amount of precursor substances. Second, emission sources and ozone formation are not connected in space and time. "Ozone can form 30 to 50 km away from the pollution source," says Prof. Peter Fabian, holder of the professorship in bioclimatology and pollution research at Munich University. This is also the explanation for especially high ozone levels in so-called clear-air zones outside congested areas.

Because a given measure can only with difficulty be correlated directly with rising or falling ozone levels, this irritant gas leads to heated debates not only among politicians but also among scientists, physicians and toxicologists. "Fearmongering is often engaged in," Prof. Erich Elstner of Munich University opined at VDA's meeting. And "failures of occurrence do not represent damage," the phytopathologist says. The obstruction of

the respiratory tubes when high ozone levels are present has "nothing to do with a sign of toxicity," Elstner says.

However, not everyone agrees with these "all-clear" signals. Prof. Michael Wagner, ozone expert at the Federal Public Health Office in Berlin, continues to plead for reasons of precaution that children and ozone-sensitive adults forego unusual physical exertion with levels from $160 \mu\text{g}/\text{m}^3$ - even though everything thus far indicates that ozone in the concentrations occurring in Germany does not result in permanent harm to one's health. According to Elstner, one knows of permanent tissue damage in residents of Mexico City, for example, where the ozone level is almost constantly between 350 and $800 \mu\text{g}/\text{m}^3$. On the other hand, the fact that ozone in concentrations as low as $70 \mu\text{g}/\text{m}^3$ impairs the growth and metabolism of certain cultivated plants is undisputed. According to information from the Federal Environmental Agency (UBA) in Berlin, studies from the USA and the Netherlands come to the conclusion that crop losses because of ozone pollution are at the level of billions per year.

VDA also expects that the pollution load from traffic, in spite of everything, will have to be reduced further. "Nevertheless," VDA Director Zimmermeyer says, "the policy measures introduced thus far are sufficient." The exhaust gas load from traffic has been in the process of being reduced since as early as 1989, he says. Catalytic converters and activated carbon filters in passenger cars, suction hoses at gas stations, the reduction of benzene in gasoline and the European standard for commercial vehicles, according to VDA's forecasts, will result in a reduction in emissions in the old federal states by the year 2000, versus 1991, of by 78 percent as regards hydrocarbons, and of by around 65 percent as regards nitrogen oxides. The legislature should leave further measures to the automobile industry, says the VDA. For instance, according to BMW environmental expert Metz, shortening of the inefficient cold-starting phase in the catalytic converter and reduction of the especially reactive hydrocarbons in gasoline are being tested.

All the same, the car continues to remain the focus of the debate. The American environmental agency, the EPA, came to the conclusion as long ago as 1989 that in California damage to health because of automobile exhaust gases occurs to the tune of at least \$10 billion per year. Calculations are presently being made at the UBA too: "We want to know the environmental costs brought about by the automobile in Germany," UBA spokesman Dr. Holger Brackemann explains. At present he cannot yet make a statement concerning the level. According to his estimates it could be definitely "at the three-figure billion level."

Plant Converts Waste Into Raw Materials

*94WN0386E Duesseldorf VDI NACHRICHTEN
in German 5 Aug 94 p 16*

[Article by Christa Friedl under the rubric "Environment": "New Combination Process Is To Recover Recyclable Materials From Waste for the First Time in Lower Saxony. Conversion at the Waste Front"; first paragraph is an introduction]

[Text] Lower Saxony is writing waste history: In the rural district of Northeim the first facility is coming into being that will convert according to the so-called household waste conversion process dump waste and sewage sludge into energy and recyclable materials.

The rural district of Northeim will over the short or long term no longer need a dump. Markus Hubig, chief executive of EAM Umwelt GmbH [Environment, Ltd.] in Kassel, made this sensational forecast public in the middle of July. The trash of the rural district of Northeim not far from Göttingen is presumably to be removed from this world by a new disposal process as of 1997. Then the dump will be superfluous for two different reasons: For one thing, with the process there will be almost nothing left to dump. For another, the leftover waste of today's dumping grounds is also to be disposed of.

This will all be possible by a combination process - the conversion process - developed by Noell Abfall und Energietechnik [Waste and Energy Technology] in Würzburg and run by EAM. This process takes place in two stages. At the first stage the waste is exposed to a temperature of 550 degrees Celsius for around an hour in a rotary dryer with the exclusion of air. The organic constituents are thereby carbonized to coke and a multitude of liquid and gaseous hydrocarbons. The energy of these pyrolysis products is utilized at the second stage - entrained-bed gasification: Hydrocarbons and finely ground coke are cracked in a reactor at 25 bars and around 2000 degrees Celsius with technically pure oxygen into a synthesis gas having as its main components carbon monoxide and hydrogen. The ash that forms fuses at the high temperatures and is removed as slag that solidifies to a vitreous granulated material upon prompt cooling.

What remains is recyclable metals that are separated from the pyrolysis coke, and slag incorporating heavy metals. The crude gas is cleaned by a multistage process, whereby sulfurous waste matter is produced. Waste matter also originates when the waste water is cleaned. "Nearly all the materials can be recycled," Hubig declares. "Only the salts from cleaning of the waste water have to be disposed of as waste for special treatment"—around three grams per kilogram of waste.

According to Hubig the plant generates around 6 MW of power. A small part of this heats the low-temperature carbonizing dryer for pyrolysis, and the largest part is used in order to generate electricity and steam. The electricity is used in large part for the air-separation plant, which produces the oxygen for the high-temperature gasification.

The Thermoselect process, the Siemens KWU low-temperature carbonization process, and a process of Veba Öl [Oil] are also based on the combination process in which the low-temperature carbonization of waste is combined with high-temperature gasification or incineration. EAM subjected to a comparison the offerings of

Noell, Veba Öl and Thermoselect. According to Hubig there were several reasons for the conversion process: Noell guarantees for the planned 100,000-tons per year plant flue gas whose emissions are "distinctly below the legal limits" for heavy metals, dioxins and furans, for example. The new formation of dioxins and furans is to be prevented because of the oxygen-free atmosphere and the rapid cooling of the gases.

The process works especially well, Hubig says, because small plants can also be operated economically. With an investment of 250 million German marks [DM], the conversion plant is more advantageous than a conventional waste incinerator. But waste disposal becomes inexpensive primarily because the cost of disposing of and melting the slag is omitted, and, besides, the more distant transportation of waste will become unnecessary through the construction of decentralized plants. All in all, the disposal of a ton of waste will cost around DM420.

The interfacing of pyrolysis and gasification is new, because on a large scale both stages have thus far been run separately. Hubig says, "The upscaling of both components could cause problems." Thus far there has been little experience with pyrolysis dryers and high-temperature gasification on the scale planned.

The process comes at just the right time. In Germany, according to the "Household Waste Disposal Technical Guidelines," as of the year 2005 only thermally pre-treated waste having a maximum of five percent of organic constituents is to be dumped. The conversion plant in Moringen-Blankenhagen will also dispose of leftover waste from the dump, in addition to household waste and sewage sludge. Besides, the dump is acting both as an intermediate storage facility for waste, and for intermediate products like coke or the slag intended for recycling in road construction. The Institute for Energy and Environmental Research (IFEU) in Heidelberg is presently studying whether the process fulfills the requirements of environmental compatibility testing.

Salts Used To Capture Mercury for Clean-Up

94WN0386D Duesseldorf VDI NACHRICHTEN
in German 5 Aug 94 p 16

[Article by Rainer Antkowiak under the rubric "Environment": "Cleaning of Flue Gases by Means of Zeolite. Salts Trap Mercury"]

[Text] Metallic mercury, dioxins and furans from incinerator flue gases can be trapped on a new kind of zeolite. Mercury is recovered and the organic pollutants are destroyed. The advantage of the Medisorbon technique of Lurgi Energie und Umwelt GmbH [Energy and Environment, Ltd.] in Frankfurt: "We are offering for the first time as a new development on the market a closed physical cycle for metallic mercury," stresses Ole Petzoldt, adsorption technology sales manager at Lurgi.

The heart of the technique developed together with Degussa in Frankfurt is a filter system based on Degussa's Wessalith Day adsorbent, a zeolite. Zeolites are inorganic silicates in which as a rule a third of the silicon atoms have been substituted by aluminum. The crystal structure of aluminosilicates exhibits open channels in which molecules are held in a matching quantity. Accordingly, zeolites are good adsorbents. In Degussa's Wessalith Day zeolite it has been possible to make the percentage of aluminum atoms low. Klaus Schneider, head of the field of concentration of pigments at Degussa says, "The extremely low aluminum content is the reason that our modified zeolite differs from conventional zeolites." It is not strongly hydrophilic like the others, but extremely water repellent and especially suited for the selective adsorption of nonpolar compounds from moist gases, he says. It consists largely of silicon dioxide and is consequently not flammable, and it functions, temperature resistant, to 1000 degrees Celsius.

Mercury is adsorbed via a chemical reaction. "The additional sulfur impregnating agent enters into a stable insoluble compound with the adsorbed metallic mercury," Schneider explains. Mercuric sulfide forms. The technique has proved its worth in the cleaning of mercury-containing gases from the incineration of sewage sludge at a facility in Dordrecht in the Netherlands.

Use of Composting To Treat Waste Described

94WN0386C Duesseldorf VDI NACHRICHTEN
in German 29 Jul 94 p 16

[Article by Rainer Antkowiak under the rubric "Environment": "Waste Can Be Conditioned by Anaerobic Pretreatment. Composting Becoming Easier"; first paragraph is an introduction]

[Text] Duesseldorf, 29 July (VDI-N)—Fermentation gas and compost are the end products of a combination process that could help to clear away the mountain of just under eight million tons of organic waste per year in Germany. The Waasa process developed by engineers at the Avecon environmental technology firm domiciled in Vaasa, Finland, makes it so that wet, poorly structured organic waste that is otherwise problematic as regards rotting can be composted in the conventional manner.

"The Waasa process is simple and dependable," is how Leif Akers, chief operating officer of publicly owned ASJ Waste Treatment Ltd. in Vaasa sums it up. It is the proprietor of a benchmark facility of this type, and with a capacity of 25,000 t/a disposes of the household biological waste of 200,000 residents. "We can also process slaughterhouse waste or sewage sludge," Akers says.

Everything starts quite unspectacularly. The biological waste is sorted and aerated in a screening drum. Reiner Schowlow, waste disposal marketing department head at Thyssen Still Otto, the licensee and marketer of the

Waasa process says, "Closed paper bags and plastic bags are ripped open in the screening drum by built-in blades." Most of the shreds of white plastic of the plastic bags unfortunately can no longer be completely removed later, admits Jan Teir, head of process development at Avecon. No reliable separation process could be found, so part of the plastic lands in the compost, impairs its quality and appearance and makes it difficult to sell it.

The waste from the screening drum, with the impurities and coarse materials removed, is either recycled directly into the screening drum, disintegrated in a pulverizer, or delivered for composting. Iron-containing impurities are separated by a magnetic separator.

Then the biological waste, together with water brought to a certain temperature, goes into the so-called mix separator. "Here collected garbage is separated or also mixed waste is converted into biomass that has the right consistency for subsequent fermentation," Teir explains. The blended biological waste in the 150-m³ tank is brought to an optimal dry-matter content and is sorted according to its density. Heavy bits sink down and are collected there over several days. Lightweight material floats up and eventually is also drawn down when the tank is emptied.

Then a reciprocating pump transfers the biomass in the mix separator to the twin reactor for fermentation and fermentation gas production. Here an antechamber sees to the separation of impurities again, as well as to the start of fermentation under anaerobic conditions. For this purpose biomass is injected into the antechamber from the most biologically active zones of the reactor's main chamber. "Our bacteria injection system," says Teir, "shortens the starting phase of the fermentation and thus speeds up quite substantially the conversion to fermentation gas." Gas formation is aided further by the controlled injection of fermentation gas into the main chamber and by a design feature: A swirl zone make it so that not the entire contents of the reactor are blended, but only the area that can be fermented most effectively. It takes 15 days for the particles in the main reactor to pass through the various stages of disintegration of the organic matter to the gas phase.

The specific quantity of fermentation gas that is drawn off, cleaned and converted in a gas-fueled generator into electricity - about 330 kWh per ton of waste - and heat amounts to 100 to 150 cubic meters per ton of biological waste. "Thus more than enough home-made energy is available," Schowlow [as written] explains, "to incorporate energy-self-sufficient composting in a second process stage." The floor space required now is also smaller than for conventional composting plants. Matter that because of its high water content usually causes difficulty in ventilation of the Minton element has become compostable because of the pretreatment in the twin reactor. It aids fermentation gas production. The dehydrated fermentation residue (about 50 to 60 percent of the input) from the twin reactor is composted along with the rest.

This was not always so. There were big problems at the beginning. To begin with, anaerobic waste treatment, i.e., composting, was put before the anaerobic fermentation gas phase. When it was realized that this was a mistake, the developer found out that the reactor charge was too dry and not enough fermentation gas passed through. "Before Avecon began its development work," Teir relates further, "several other companies had already gone bankrupt on this problem."

Wind Tunnel Used To Mitigate Emissions

94WN0386B Duesseldorf VDI NACHRICHTEN
in German 29 Jul 94 p 16

[Article by "cf" under the rubric "Environment": "The Diffusion of Power Plant and Industrial Gaseous Emissions Can Be Determined in Advance in a Model. Pollutants in the Wind Tunnel"]

[Text] Can still another industrial establishment be sited in an industrial area without a near lying residential neighborhood's suffering too much under the gaseous emissions? Can responsibility be taken for building a tunnel in addition at the edge of an in any case already heavily used inner-city zone? Wind tunnel experiments are helping to answer such questions.

Most studies on problems of air quality are components of expert opinions on potential smokestack and cooling tower emissions. TÜV [the Technical Control Board] and the operators of power plants and nuclear power plants are the primary clients. "Here one is concerned with the question of the most favorable location in connection with buildings," states Professor Erich Plate, head of the Institute for Hydrology and Hydroeconomy at Karlsruhe University. If one is to determine, for example, how emissions of cooling tower fumes make themselves felt, they are made visible by means of smoke in a wind tunnel in order to be able to identify areas critical in terms of quality.

The kind of wind tunnel is important for success. The scenarios of interest are realistically modeled in a measuring chamber over 10 meters long and 2 meters wide. With the development of the thermal-layer tunnel it became possible to produce air streams with various temperature layers. By this means the scientists in Karlsruhe are investigating how thermal effects like atmospheric conditions of inversion or cold air streams affect the diffusion of pollutants.

The conventional wind tunnel by means of which the construction engineering aerodynamics department of the Institute for Hydrology and Hydroeconomy is making air quality studies is a boundary-layer tunnel: In order to be able to simulate the natural diffusion of pollutants, a blower produces an air stream that models, scaled down, the structure of the ground-level air layer with its turbulence. The air is blown through the measuring chamber, in which there is a miniature model of the groups of buildings in question. Finally, a study is

made of the flow resulting from the combination of the boundary-layer flow and group of buildings.

In the new thermal wind tunnel, thermally layered air streams are also being used in addition for the first time: Ten air flow layers, one above the other, are controlled individually and produce a differentiated temperature-and-velocity distribution. In this way ground-level atmospheric mixing zones can be modeled, such as originate under atmospheric conditions of inversion because of heating up of the ground. The cost of development of the new wind tunnel, which went into service last year, was high: Five computers control the individual blower outputs, the temperatures in the individual air layers and the heating of the ground. The air velocity and turbulence are measured by means of advanced Doppler laser technology.

The scientists are presently working on the question of how built-up areas generally affect the diffusion of exhaust gases from roads or gas accidents. The wind tunnel is a must for studies precisely when the diffusion of gases is shaped primarily by streets lined with buildings and by the kind of development. In the "far field" the development plays just a minor role and affects the diffusion process indirectly through the structure of the turbulence. "By means of such basic research it is possible to determine whether certain critical values are met in the various concentration ranges of gases," Plate explains. "In addition, it is possible to develop incident-alarm systems for potential gas accidents."

Incineration Called Acceptable Alternative to Recycling

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in German 29 Jul 94 p 16

[Article by "cf" under the rubric "Environment": "New Federal Recycling Law Does Not Bar Waste From Entering the Incinerator. Incineration as Good as Recycling?"]

[Text] In the beginning of July the new federal recycling law cleared the last parliamentary hurdle with the mediating committee's help after long debate. The most controversial clause in the present wording of the compromise: Waste incineration is as good as recycling if the facility fulfills certain requirements.

Germany has a new waste management law as of July 8. A new dimension is to be gotten in waste management policy with the passing through the Bundestag and Bundesrat [lower and upper houses of federal parliament] of the federal recycling law: A course away from waste disposal toward the recycling economy. Federal Environment Minister Klaus Topfer hopes that "The federal recycling law will set the course for the more effective conservation of our raw-material resources and the development of low-waste products, and thus for changing in the long term the entire consumption and production system to a recycling economy."

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The new "Law for the Promotion of the Recycling Economy and the Ensurance of Environmentally Compatible Waste Disposal" has the following salient points:

It establishes a new precaution-oriented concept of waste. Waste is no longer just things that their possessor wants to throw away. In the future waste will also be products and scrap materials that are neither being produced with a purpose nor being used according to their purpose. This includes metal chips or toxic substances from industrial production, as well as old cars and newspapers. "This stuff has been able to be treated till now as putative merchandise not accountable for ecologically, and has brought us many an export scandal," says Topfer.

This hole is to be plugged now. As far as this waste is to be recycled, the law designates it in accordance with the EU's "Waste for Recycling" law, and non-recyclable waste is accordingly called "Waste for Disposal."

In addition, public responsibilities for the avoidance of waste are defined in central spheres of production and consumption: On the one hand, waste must be avoided already as far as possible in industrial production processes by, for example, the integrated recycling of feedstocks, oils and solvents. On the other hand, through legal liability for products, products themselves are already to be designed so that waste is reduced when they are being manufactured and used, and that environmentally compatible recycling and disposal are ensured after they have been used. Products are to be reusable, have a long service life, be easily repaired and contain a low level of pollutants.

Still No Specific Regulations for Practice

However, liability for products can be legally enforced in the future too only by means of regulations. "Legal liability for products, however, will trigger the definite strengthening of voluntary initiatives by industry," the minister hopes. In addition, industry's stronger liability is to give impetus to the already prepared product regulations for electronic waste, old cars and waste paper.

Unavoidable waste is to be made use of in an environmentally compatible manner. Making use of in the materials respect (recycling) and in the energy respect (incineration) are equally permissible here. The federal government, according to information from the Federal Ministry for the Environment (BMU), wants to define through regulation the precedence of the kind of utilization for individual kinds of waste, e.g., recycling quotas for packaging and waste paper.

As long as no such regulation yet exists, waste can be recycled or incinerated. Incineration presupposes that the waste has a heating value of 11,000 kJ/kg, the incineration facility attains heating efficiency of 75 percent, and the heat produced is used internally or is given over to a third party.

According to BMU, these preconditions are to ensure that conventional waste incineration, especially of household refuse, is not "making use of in the energy respect" under the law. Christine Meinecke, waste expert of the German Association for the Environment and Nature Conservation (BUND) in Bonn, opposes this. "The compromise wording, that incineration be permitted only if a minimum fuel value of 11 megajoules per kilogram is attained, is nothing more than self-delusion by playing down problem." Mixed household refuse in communities that collect discarded glass products and biological waste separately already today attains a fuel value that is above this limit, and is thus generally approved for incineration, she says.

The law stipulates as a further point that only that waste should be disposed of that cannot be made use of. Yet the legislature is demanding the highest possible safety standard for the environmentally compatible treatment and dumping of the waste to be disposed of.

Not least, business and industry are to take care of their waste essentially as their own responsibility and at their own cost. Moreover, they can engage third parties and trade associations and chambers for this. Through the privatization of waste disposal the law obligates business and industry to fulfill high-tech requirements in waste disposal too, just as these requirements are a matter of course in production.

ITALY

Global Climate Commitment Described

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[As received via ANSASERVICE database]

[Text] Rome, (ANSA) 8 August—The 10th negotiating committee of the convention on climatic changes will meet in Geneva from 22 August to 2 September. This will perhaps be the right time to give the scientific explanations for this heat wave, that even the weather forecasters define as exceptional. The most practical part of this important chapter of environmental diplomacy started with the second conference on the climate held in Geneva in 1990. Once again Geneva will be the theater of the debate and of government pledges to enforce the convention. The agenda for the plenary session includes acknowledgment of the ratification of the convention and discussion of the funding mechanisms to support it. The information that has been provided by the parties, and the methods for activating the technical support for developing countries and the relative funding mechanisms will, on the other hand, be analyzed by work groups. The parties will meet in Berlin in April 1995 to discuss the final conclusions of the work groups that will provide details of the situation regarding the various recommendations and the commitments of the various signatory countries.

The first commitment is certainly that of presenting the national inventories of emissions and of the anthropogenic sources of all the gases that are causing the greenhouse effect and that are not controlled by the Montreal protocol, as well as a general description of the initiatives being taken to actuate the convention. The countries belonging to the OECD, these being the more industrialized countries, and those with economies that are in a transitional stage, should also supply a detailed description of the strategies that have been identified and the measures that have been adopted to mitigate climatic change, as well as a forecast of the changes in the emissions that will result from the measures adopted. The member states of the European Union, which have not prepared a real program document though they discussed it during the months of June and July, have however found a common position that originates from the proposal presented by the OECD committee. This is to create a work group that will examine the national reports and deliver its findings to the 11th negotiating session planned for next January.

The painful subject will certainly be the economic support mechanisms for the actions needed to cope with the climatic changes. According to Article 3 of the convention, these interventions can be accomplished through the cooperation of the interested parties in accordance with the joint implementation mechanism. In this respect, the member countries of the European Union have worked on a common hypothesis that provides for this mechanism to be accessible to all the contracting parties and for it to only come into effect after the individual countries have met their own commitments to stabilize the emissions in their national territory. According to the European Union the joint implementation mechanism should be voluntary and should be accessible to the sector and to private operators. Furthermore it should be funded by separate funds that are additional to the commitments planned or assumed in the convention for the developed countries. On the other hand, as far as technical-scientific assistance is concerned, the work will include discussing the proposal to assign to subsidiary bodies the task of acting as a liaison between the parties in the conference and the various international scientific organizations, as well as that of evaluating the level of implementation of the obligations deriving from the convention.

The task of assisting the conference to review the national plans presented by the parties will also be evaluated. As far as the respect of the obligations assumed by Italy when the convention was signed is concerned, Italy presented its instrument of ratification in New York on 15 April 1994. Article 4 of the convention provides for this to become operational 90 days after the signature ratifying the document has been deposited. Therefore, as far as our country is concerned, the convention came into force on 14 July, and Italy must deliver its first national report six months after that date. As far as real measures to effectively reduce emissions are concerned, the government has identified a

strategy of progressively replacing the technologies that have a major impact on the environment with innovative technologies, ranging from the use of alternative energies (solar, photo voltaic, biomass, waste recycling) to increased energy saving measures.

Furthermore the ratification of the convention provides for an allocation of 1.5 trillion [lire], this being destined precisely to the monitoring and updating of the national programs to stabilize the gases causing the greenhouse effect and to supporting the Italian action within the panel of climate change. The national Italian program, the first draft of which was presented to the EEC in 1992 has successively been subjected to further updating. It primarily provides for measures that have the goal of reducing emissions of methane, nitrogen dioxide, and the other nitrous oxides. It mainly hits the agriculture and animal husbandry sectors and those using fossil fuel technologies for industrial and residential applications. On this particular front, Italy can boast of having the lowest carbon dioxide emission figures of the developed countries.

This encouraging fact is indicative of the high level of energy efficiency that has been achieved by the Italian civil and industrial system. Thanks to this favorable starting point, actions to reduce emissions come into the area of concrete interventions that can be effected immediately. One that concerns the sector producing electrical energy is that of the cogeneration and autoproduction of electricity.

ENEL [National Electric Power Company] programs for thermoelectric plants provide for oil and coal-fired power plants producing 3,630 Megawatts with an average efficiency of 34 percent to be dismantled by 2000, and for the construction of new turbogas power plants with an average efficiency of about 50 percent, and the construction of new multiple-fueled power plants producing about 5,800 Megawatts with an average efficiency of about 40 percent. With an investment of 18 trillion lire ENEL plans to produce 12,580 Megawatts compared with the 20,182 that were specified in the ENEL plan for 1991. As far as cogeneration is concerned, with an investment of about 5.5 trillion lire and the provisions already adopted (Law No. 10 of 1991 and CIPE [Interministerial Committee for Economic Planning] decision number 622), there are already plans to produce 5,000 Megawatts by 2000. A second phase of measures is based on norms and regulations that have the goal of defining standards on the minimum energy efficiency for automobiles, public transport vehicles, and the civil sector.

Furthermore voluntary agreements between administrations and companies to reach standards of efficiency and actions to optimize the use of energy resources for mobility in urban areas will be promoted. Measures have been drawn up to produce a saving of 11 MTEP [no expansion provided] in the energy requirement of the civil and industrial transport industry sectors and a

reduction of 31 Megatonnes in carbon dioxide emissions by 2000. The most efficient technologies that can define the technical potential to increase energy efficiency in industry have been examined, priority being given to petrochemical cycles, refining, and the working of aluminum and iron and steel. As far as transportation is concerned, both the technologies to improve the efficiency of engines and provisions for the streamlining and integrated management of mobility in urban areas have been taken into consideration. The consumption standards for new vehicles and the interventions on the engines and components of automobiles, buses, and trucks have therefore been specified. By the year 2000 these systems will enable a saving of 2.5 MTEP to be effected and carbon dioxide emissions to be reduced by eight Megatonnes.

Other measures concern programs for the integrated management of mobility in the 13 largest urban areas by

creating extensive areas with controlled access and limited traffic. These provisions should enable a saving of 1.5 MTEP [Megatonnes of petroleum] and a 3-Megatonne reduction in carbon dioxide emissions to be made by 2000.

Measures have been identified for the civil sector to save resources by means of a selection of standards and technologies that provide for the introduction of heat pumps, the insulation of piping and tanks, and the utilization of highly efficient domestic electrical appliances and lighting systems and equipment. By the year 2000 these measures should produce a saving of three MTEP and a 9-Megatonne reduction in carbon dioxide emissions. The necessary investments are estimated at 3.3 trillion lire, of which 1.11 trillion lire will be destined to other incentives. This range of measures, provided for in the national program, could further reduce the energy requirement by another six MTEP and reduce carbon dioxide emissions by 17 Megatonnes by 2005.

IAEA Chief Calls for World Cooperation

AU1909180694 Vienna IAEA Press Release in English
19 Sep 94

[IAEA "Press Release—for use of information media, not an official record": "Highlights of IAEA Director General's Statement to the 38th Regular Session of the IAEA General Conference"—received directly via fax from the IAEA Public Information Service]

[Text] IAEA Director General Hans Blix today called for a "new understanding" among governments to secure sufficient funds to enable the Agency to carry out increasing responsibilities for the safe and peaceful development of nuclear energy. Dr. Blix made the remarks in a statement to the 38th regular session of the IAEA General Conference. High-level governmental delegations from the Agency's 121 Member States are attending the Conference, which is meeting this week in Vienna, Austria.

"New responsibilities will have to be assumed to meet emerging new requirements," Dr. Blix said. "For the Agency to successfully meet the current and expected demands...a new understanding among governments is needed to secure adequate and timely funding for the full range of present and new activities which the Agency is called on to undertake."

Dr. Blix reviewed a number of areas in which governments are entrusting the IAEA with a greater role. They are related to the development of international rules and services in the fields of nuclear safety, radiation protection, and waste management; the transfer of nuclear technologies for electricity generation, food production, health care, and environmental protection; the implementation of nuclear safeguards under a growing number of agreements; and the performance of verification tasks requested by the UN Security Council or under bilateral and multilateral agreements in the field of nuclear arms control and disarmament.

Highlights of the statement follow: Safeguards in the Democratic People's Republic of Korea (DPRK): The IAEA has been able to maintain a continuous inspector presence at the Nyongbyon nuclear centre, Dr. Blix noted. He expressed hope that all declared facilities in the DPRK will soon again be fully subjected to safeguards, and that additional information and visits to additional sites will be forthcoming. "Both the IAEA and the United Nations have concluded that the safeguards agreement remains valid and that the Agency is under an obligation to seek to implement it fully," he said. He pointed out, however, that since May 1994 the IAEA has been granted access only to some of the declared facilities, including the 5-megawatt reactor and parts of the reprocessing plant. Access to the fuel fabrication plant, and the fresh fuel storage facility was not permitted through the summer and has only been reinstated since 5 September 1994 he said. Access to the reprocessing line under construction, however, has not been granted, he

said. Dr. Blix added that results from inspection in March and May of this year have not provided any indication of reprocessing of recently irradiated fuel or of loading of fresh fuel into the reactor.

Nuclear inspections in Iraq: Since 1991 under the mandate of the Security Council, the IAEA has carried out 26 Inspection missions to Iraq, completing the destruction, removal, or rendering harmless of all known nuclear-weapons usable material, facilities, and equipment, Dr. Blix noted. He said that, since August 1994, the IAEA has established a continuous presence in Iraq, putting the Agency in a position to implement its long-term plan for ongoing monitoring and verification. The plan includes a mechanism for monitoring future sales or supplies by other countries to Iraq. The mechanism has been jointly developed by the IAEA, UN special Commission, and the Sanctions Committee, and it is expected to be approved shortly by the Security Council, Dr. Blix said.

Existing and expanding safeguards activities: The IAEA's safeguards activities have increased, or are expected to, in a number of areas, the Director General said. One area of increasing activity is the Newly Independent States of the former Soviet Union. Safeguards agreements have been concluded with eight of these States, though not all have yet entered into force. In preparing for full implementation of safeguards, he said that the IAEA has carried out nearly 30 fact-finding missions and technical visits on matters related to the control of nuclear activities and to the establishment of state systems of nuclear accounting and control.

Dr. Blix further reviewed the status of efforts for strengthened and more cost-effective safeguards. He noted that some messages have been adopted and that other proposals are scheduled for presentation to the IAEA Board of Governors in March 1995. Key proposals, he said, are related to increased access to information about a State's nuclear programme and increased physical access to sites.

New and possible verification tasks: Dr. Blix said, that under an agreement with the United States the IAEA has started applying safeguards on some U.S. fissile material no longer needed for defense requirements. A first inspection was recently carried out at a storage site in Oak Ridge, he noted, adding that additional highly enriched uranium and plutonium is expected to come under safeguards as such materials are declared excess to defense requirements. In calling the steps a "positive and encouraging development," he pointed out the importance of finding long-term solutions of issues concerning the management and financing of such arrangements.

Regarding other developments, Dr. Blix said that the IAEA has set up a working group to examine relevant issues related to the proposed cut-off agreement for the production of highly enriched uranium and plutonium for weapons purposes. The action was in response to a resolution of the UN General Assembly, which has

recommended the negotiation of a cut-off agreement. He further pointed out the IAEA's technical advisory role regarding future verification arrangements for a Comprehensive Test Ban Treaty. At the request of the Ad Hoc Committee on a CTB [expansion unknown] of the Conference on Disarmament, the IAEA has made presentations before the Committee reviewing its experience in radio [word indistinct] monitoring and on-site inspections.

In reviewing these and other areas, Dr. Blix underscored the IAEA's "close, prompt, and effective liaison and interaction" with the United Nations. "The Security Council has looked to the IAEA as the nuclear inspection arm of the UN system, and the Agency has looked to the Council as the body politically responsible for the implementation of nuclear arms control measures," he said. "As attention to nuclear non-proliferation increases and more nuclear arms control measures requiring verification are adopted, it would be reasonable and cost-effective to continue building on this distribution of functions."

Trafficking in nuclear material: The Director General expressed the IAEA's readiness to convene a "round table" of government experts that could recommend specific actions for promptly countering nuclear trafficking problems. He said there have been extensive discussions between States in recent weeks in search of remedies, and that the IAEA has consulted many of those exposed to trafficking to identify ways in which the Agency might help mitigate the problem. He said that with adequate resources IAEA assistance could be expanded in areas of nuclear accounting and control, in the physical protection of nuclear material, and in the systematic reporting of information related to reports of trafficking.

Nuclear safety, radiation protection, and radioactive waste management: New expectations in the international community are leading toward a stronger global legal framework for the safe development of nuclear energy, Dr. Blix said. He noted that governments recently have adopted the International Convention on Nuclear Safety; that the IAEA Board of Governors earlier this month adopted new international basic radiation safety standards and that consensus exists for a convention on the safe management and disposal of radioactive waste. "National authorities retain the full responsibility and control of the safety of nuclear operations and waste handling," he said. "Yet they wish to have an insight, notably through internationally organized peer reviews into how this responsibility is exercised in other countries and to have also a possibility to urge compliance with common standards." In this connection, he further noted IAEA programmes for providing guides, standards, and expert assistance in areas

of spent fuel management, radioactive waste management, radiation protection, and assessments of the radiological impact of past dumping of nuclear material at sea.

Concerning the nuclear safety situation in Central and Eastern Europe countries, Dr. Blix said that significant progress has been made to establish a consensus on priorities for safety improvements pertaining to the different generations of WWER and RBMK reactors. The consensus provides guidance both for national programmes to improve safety, he said, and for the international assistance efforts co-ordinated by the G-24 mechanism. Experts visiting many plants in Eastern Europe and countries of the former Soviet Union report that safety is improving, though not at the same pace in all plants and in all countries. "It is clear that significant efforts will still be necessary for years to come and that the main burden for updating or phasing out reactors will be carried by the countries concerned," he said.

Nuclear power development: In the face of global energy and environmental needs, the Director General urged governments to look closely at the available options for electricity generation and pointed out the IAEA's active role in such comparative assessments. Although it is now difficult to predict nuclear power's future role, he said that its environmental and economic competitiveness remain strong features. "It is striking, but not uprising, that the scenarios which achieve the most effective reduction of carbon dioxide emissions have a strong component of nuclear power," he said. He further noted that since nuclear power is generally cost competitive with fossil fuelled electricity generation, there should be no economic objection to meeting additional electricity demand and to replacing obsolete fossil generated electricity by nuclear power.

Transfer of nuclear technologies and nuclear applications: The Director General described a number of significant developments in the IAEA's efforts to transfer nuclear science and technology in the areas of food production, health care, and sustainable development and environmental protection. He particularly singled out Agency programmes contributing to the successful campaign in Africa against the virus-borne rinderpest; the use of isotope techniques in hydrological studies; the application of nuclear technologies to monitor applied nutritional intervention programmes; and the construction in Poland of an industrial demonstration plant for electron beam purification of flue gases from coal-burning plants. He further pointed to the growing interest in the practical utilization of food irradiation for public health and economic reasons in both advanced and developing countries, and in the use of the sterile-insect technique (SIT) for controlling insect pests. Regarding SIT, he said a number of countries in the Eastern Mediterranean region were showing interest in the technology for eradication of the Mediterranean fruit fly.

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